

Improving Animal Welfare in Livestock Operations

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Table of Contents

List of Acronyms	iv
Acknowledgements	V
Introduction	1
Animal Welfare Standards	3
The Business Case for Improved Animal Welfare	9
Good Management Practices in Animal Welfare	13
IFC's Approach to Animal Welfare	21
Resources	2.5

List of Acronyms

AIP IFC's Access to Information Policy

EBRD European Bank for Reconstruction and Development

ESAP Environmental and Social Action Plan

EU European Union

FAO Food and Agricultural Organization of the United Nations

IFC International Finance Corporation

NGO Non-Governmental Organization

OIE World Organisation for Animal Health

PS IFC Performance Standard

UK United Kingdom

UN United Nations

Acknowledgements

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Introduction

In the past decade, animal welfare has been increasingly recognized in importance in commercial livestock operations. Governments, academic institutions, and animal welfare professionals are addressing animal welfare at different points in the agricultural supply chain, while consumers are demanding higher standards for food safety and animal welfare. Meanwhile, regional and global initiatives to provide guidance on acceptable animal welfare practices have emerged.

Businesses that address or enhance animal welfare are likely to win or retain a competitive advantage in the global marketplace by:

- reducing costs due to improved human-animal relationships and other welfare benefits, which can lead to
 increased productivity;^{1,2}
- realizing growing market opportunities for food produced in animal welfare-credentialed systems; and/or
- becoming the producer of choice for retailers and consumers concerned with animal health and welfare, food safety and quality, human health, and the environment.

IFC is committed to working with clients to reduce losses, increase productivity, and/or access new markets through the application of sustainability principles, including animal welfare standards. This Good Practice Note (GPN), which supersedes the 2006 edition, contributes to IFC's continued commitment to supporting clients in a responsible and forward-looking approach to traditional livestock production (dairy, beef, broiler chickens, layer chickens, pigs, and ducks) and aquaculture in intensive and extensive systems to, among other things, help producers access and maintain entry to high quality and value market segments.³ This GPN describes a range of animal welfare good practice and complements IFC's Performance Standards on Environmental and Social Sustainability (2012), in particular animal husbandry requirements for IFC clients as reflected in Performance Standard (PS) 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.⁴ The Note also describes IFC's approach to animal welfare, including details on IFC's approach to due diligence.

¹ Productivity is the "ability of an animal to grow, reproduce and produce outputs such as milk, wool, draught power and transport." ILCA (International Livestock Centre for Africa). 1990. Livestock systems research manual. Working Paper 1, Vol. 1, Section 1, Module 7—Animal Nutrition. ILCA, Addis Ababa, Ethiopia. http://www.fao.org/wairdocs/ilri/x5469e/x5469eoa.htm.

² Hemsworth PH and Coleman GJ. (2011). Human-Livestock Interactions: the Stockperson and the Productivity and Welfare of Farmed Animals, 2nd Edition. CAB International, Oxon, UK. http://anatomiayplastinacion.wikispaces.com/file/view/Human-livestock.pdf.

³ To date, IFC has not typically invested in extensive production systems, aside from supply chain considerations.

⁴ See http://www.ifc.org/performancestandards.



Animal Welfare Standards

Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management and nutrition, humane handling and humane slaughter or killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment.

-As defined by the World Organisation for Animal Health (OIE)5

A number of international recommendations, principles, codes, and laws focus on animal welfare, and a growing number of countries have enacted animal welfare legislation outlawing specific animal husbandry practices. Animal welfare stakeholders agree that animal welfare standards must be based on sound science, research, and practical experience. Measures of animal welfare include behavior and physiology, productivity, reproductive success, mortality rates, and incidence of injury and disease. Attention to animals' housing, food, water, and health can improve their

welfare, their productivity, and profitability. Productivity should be assessed in conjunction with other measures to ensure that animal welfare is appropriately addressed and managed. Focusing only on productivity—particularly in large-scale operations—can lead to poor animal welfare conditions. Box 1 highlights key developments in animal welfare standards, policy, and practice during the past decade.

"THE FIVE FREEDOMS" OF ANIMAL WELFARE

Originally put forward by the United Kingdom (UK) Farm Animal Welfare Council, principles referred to as The Five Freedoms (see Box 2) underpin international dialogue on animal welfare and are reflected in guidelines, recommendations, codes, and legislation prepared by countries of Asia, Australasia, the European Union, and North America, and by the OIE,7 to address animal welfare issues. The Five Freedoms refer to idealized states of welfare rather than standards. They emphasize that the welfare of an animal includes its physical and mental state; that good animal welfare implies both fitness and a sense of well-being; and that any animal kept by humans must, at least, be protected from unnecessary suffering.

Animal welfare stakeholders agree that standards of animal welfare must be based on sound science, research, and practical experience.



⁵ OIE (2014). Terrestrial Animal Health Code, Chapter 7.1 - Introduction to the Recommendations for Animal Welfare, OIE, Paris. http://www.oie.int/ fileadmin/Home/eng/Health_standards/tahc/2010/chapitre_aw_introduction.pdf.

⁶ Now the Farm Animal Welfare Committee—see https://www.gov.uk/government/groups/farm-animal-welfare-committee-fawc.

The Five Freedoms are referred to in OIE's Guiding Principles for Animal Welfare—see http://www.oie.int/index.php?id=169&L=o&htmfile=chapitre_aw_ introduction.htm.

Box 1. Developments in Animal Welfare Standards, Policy and Practice during the Past Decade^a

Policy and Regulation

There's a global movement underway to improve animal welfare standards. Countries in Africa, Asia, Latin America, and the Middle East that previously offered little or no statutory protection for farm animals are developing generic anti-cruelty/animal welfare legislation and some specific regulations. Countries including Australia, Canada, members of the European Union, New Zealand, and the United States are refining their regulatory frameworks by extending the standards that apply to particular farming systems or species. In both cases, intensive production systems for pigs and poultry have received particular attention.

Scientific Thinking

Scientific thinking regarding farm animal welfare has changed in the past decade, mainly due to the recognition that animals are sentient beings.^b Previously, welfare was assessed using measures of biological functioning related to health and to meat, milk, fiber, or egg outputs. Although such measures are still used, attention now focuses on the following scientifically-supported understanding:

- Animal welfare states reflect what animals experience—i.e., their emotional or affective states—and these experiences may be negative or positive.
- The acceptability of production systems is now judged not only by inputs such as their design but also by animals' welfare-related responses to them.
- Validated measures of negative welfare states are focused on established physiological, clinical, and/or behavioral responses of animals to adverse conditions, and these measures guide preventative and remedial actions.
- Some behavior-based indices of positive welfare states are well validated and in current use, and science-based support is being sought for others.
- The negative-positive experiential balance reflects an animal's quality of life such that a net negative balance represents a poor quality of life.
- Human-animal relationships can have marked effects on animal welfare. Good welfare-related knowledge, skills, and attitudes towards animals by stockpersons enhance the welfare and productivity of livestock.

Standards and Assessment

The scope of animal welfare standards has expanded in recent years—due in part to new and increased use of animal-based health and welfare assessment criteria. In addition to looking at *inputs* related to husbandry practices, resources, and facilities design, practitioners are now also focusing on health and welfare *outcomes* for animals. This is based on the growing realization that the same welfare benefits for animals can be achieved using a range of practical approaches that are best suited to country or region-specific conditions.

(continued on next page)

^a Major source: Mellor, D.J. & Bayvel, A.C.D. (eds) (2014). "Animal welfare: Focusing on the future." Scientific and Technical Review Office International des Epizooties Volume 33(1). http://www.nzva.org.nz/newsstory/animal-welfare-focusing-future?destination=node%2F4357.

^b Green, T.C. and Mellor, D.J. (2011). Extending ideas about animal welfare assessment to include 'quality of life' and related concepts. New Zealand Veterinary Journal 59, 316–324. http://www.sciquest.org.nz/node/73077.

^c For example: the Welfare Quality (see http://www.welfarequalitynetwork.net/network) and Animal Welfare Indicators (http://www.animal-welfare-indicators.net/site/) projects.

(continued)

Retail Marketing

Transnational and national commercial companies have adopted animal welfare policies and higher standards that regulate their own livestock activities or those of their suppliers of livestock-derived products. In some countries such standards may be higher and can be applied more quickly than those required by government regulations.

Veterinary Involvement

Globally, the veterinary profession has become more active in animal welfare. More veterinary undergraduate curricula now include animal welfare content, and postgraduate specialist qualifications on animal welfare have been established. Animal welfare has become an explicit focus of many veterinary policies and is highlighted in many veterinary conferences. The veterinary profession will likely make an increasingly significant contribution to animal welfare policy and practice worldwide.



Box 2. The Five Freedoms of Animal Welfare

- 1. Freedom from hunger and thirst, by ready access to fresh water and a diet to maintain full health and vigor.
- 2. Freedom from discomfort, by providing an appropriate environment including shelter and a comfortable resting area.
- 3. Freedom from pain, injury, and disease, by prevention or rapid diagnosis and treatment.
- 4. Freedom to express normal behavior, by providing sufficient space, proper facilities and company of the animal's own kind.
- 5. Freedom from fear and distress, by ensuring conditions and treatment that avoid mental suffering.

The Five Freedoms are aligned with actions to improve animal welfare on farm, in transit, at market, and at a place of slaughter. These actions provide a comprehensive framework to guide welfare assessment, and indicate the steps for effective welfare management within the proper constraints of a responsible livestock industry.

OIE STANDARDS

As an intergovernmental organization, the OIE has a global mandate to improve animal health, animal welfare, and veterinary public health. OIE standards have become the *de facto* international reference for animal welfare in the trade of animals and their products in developed and developing markets. OIE standards act as a guide for the development of assurance programs, and it is envisaged that they will be increasingly used as a basis for bilateral agreements between OIE member countries.

All 180 member countries, ranging from the UK to China, Uganda, and Ukraine, adopted OIE's 14 global animal welfare standards: 10 standards in the *Terrestrial Code* and 4 standards in the *Aquaculture Code*. In 2012, the OIE members adopted 11 General Principles for the Welfare of Animals in Livestock Production Systems (see Box 3). OIE standards may be particularly useful in countries and contexts with poorly developed animal welfare frameworks.

EUROPEAN UNION STANDARDS

European Union law has recognized animal sentience since 1997,¹⁰ and this law forms the basis of many animal welfare standards around the world. The European Convention for the Protection of Animals kept for Farming Purposes outlines requirements with respect to housing, food, water, and care necessary to safeguard the welfare of animals, particularly those kept in modern, intensive farming systems.¹¹ European Union Directives set legally binding minimum standards of welfare for farm animals, such as laying hens, pigs, and calves. Individual member states can set higher standards within their own territories. EU Regulations cover animal transport and slaughter, and are identical in all EU Member States. In January 2012, the European Commission adopted its EU Animal Welfare Strategy 2012–2015.¹² The European Bank for Reconstruction and Development's (EBRD) approach to animal welfare

⁸ See http://www.oie.int/animal-welfare/animal-welfare-key-themes/.

⁹ OIE (2014). – Introduction to the Recommendations for Animal Welfare. In: Terrestrial Animal Health Code. OIE, Paris, Article 7.1.1. Available at: http://www.oie.int/fileadmin/Home/eng/Health_standards/tahc/2010/chapitre_aw_introduction.pdf.

Protocol on Improved Protection and Respect for the Welfare of Animals, Treaty of Amsterdam 1997; European Union. 2010. Article 13 in the Consolidated Version of the Treaty on the Functioning of the European Union, Official Journal of the European Union, C83, 30.3.2010. http://eur-lex.europa.eu/JOHtml. do?uri=OJ:C:2010:083:SOM:EN:HTML.

http://conventions.coe.int/Treaty/en/Treaties/Html/087.htm.

Box 3. OIE General Principles for the Welfare of Animals in Livestock Production Systemsa

- Genetic selection should always take into account the health and welfare of animals.
- 2. Animals chosen for introduction into new environments should be suited to the local climate and able to adapt to local diseases, parasites and nutrition.
- 3. The physical environment, including the substrate (walking surface, resting surface, etc.), should be suited to the species so as to minimize risk of injury and transmission of diseases or parasites to animals.
- 4. The physical environment should allow comfortable resting, safe and comfortable movement, including normal postural changes, and the opportunity to perform types of natural behavior that animals are motivated to perform.
- 5. Social grouping of animals should be managed to allow positive social behavior and minimize injury, distress and chronic fear.
- 6. For housed animals, air quality, temperature and humidity should support good animal health and not be aversive. Where extreme conditions occur, animals should not be prevented from using their natural methods of thermo-regulation.
- 7. Animals should have access to sufficient feed and water, suited to the animals' age and needs, to maintain normal health and productivity and to prevent prolonged hunger, thirst, malnutrition or dehydration.
- 8. Diseases and parasites should be prevented and controlled as much as possible through good management practices. Animals with serious health problems should be isolated and treated promptly or killed humanely if treatment is not feasible or recovery is unlikely.
- 9. Where painful procedures cannot be avoided, the resulting pain should be managed to the extent that available methods allow.
- 10. The handling of animals should foster a positive relationship between humans and animals and should not cause injury, panic, lasting fear or avoidable stress.
- 11. Owners and handlers should have sufficient skill and knowledge to ensure that animals are treated in accordance with these principles.

as reflected in its May 2014 Environmental and Social Policy requires EBRD's agribusiness clients to meet or exceed European Union animal welfare laws.¹³

^a Source: OIE Terrestrial Animal Health Code 2014, Article 7.1.4.

¹² European Union Animal Welfare Strategy 2012–2015: http://ec.europa.eu/food/animal/welfare/index_en.htm.

¹³ http://www.ebrd.org/cs/Satellite?c=Content&cid=1395238867768&d=Default&pagename=EBRD%2FContent%2FDownloadDocument.



The Business Case for Improved Animal Welfare

DISEASE PREVENTION AND MANAGEMENT

Disease is a good example of a joint threat to animal welfare and business sustainability. Disease causes avoidable pain and distress. The OIE "estimates that morbidity and mortality due to animal diseases cause the loss of at least 20% of livestock production globally. This represents at least 60 million tonnes of meat and 150 million tonnes of milk with a value of approximately USD 300 billion per year." ¹⁴ Major epidemics of contagious animal diseases, including those transmissible to humans, can have particularly catastrophic far-reaching effects beyond livestock operations, such as public health impacts, as well as national and global economic impacts, and have triggered international demands to strengthen veterinary services to improve animal health globally. The humane destruction of affected animals entails significant costs to businesses. Preventing and controlling disease makes a major contribution to animal welfare and makes a difference to a business's survival.

MEAT QUALITY

According to the 2001 Guidelines for Humane Handling, Transport and Slaughter of Livestock (FAO, Humane Society International), 15 animals that are healthy and well rested prior to slaughter are more likely to produce good quality meat. Animal stress before and during slaughter "will have serious adverse effects on meat quality" 16 and on the market price of the meat. Another example of financial impacts of reduced meat quality is with respect to animal bruising that may be result of unfavourable handling, transport, or slaughter practices. According to the 2001 Guidelines, above, "meat that is bruised is wasted as it is not suitable for use as food because: it is not acceptable to the consumer; it cannot be used for processing or manufacture; it decomposes and spoils rapidly, as the damaged meat is an ideal medium for growth of contaminating bacteria; and must be, for the above reasons, condemned at meat inspection."17 Sometimes simple changes in how animals are treated can have dramatic effects on the bottom line. For example, in one example, improved handling practices resulted in a more than 50% reduction in carcass bruising compared to routine farm handling practices. 18,19

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¹⁴ http://www.rr-africa.oie.int/en/news/index.html.

¹⁵ http://www.fao.org/documents/card/en/c/466c5eoe-aa6d-5cdb-8476-43245054c3bf/.

See Chapter 2, http://www.fao.org/docrep/003/x6909e/x6909e04.htm#b1-A.%20Meat%20quality.

¹⁸ Appleby MC and Huertas SM.(2011). International issues. In: Animal Welfare, second edition (MC Appleby, JA Mench, IAS Olsson & BO Hughes, eds), CAB International, Wallingford, 304–316.

¹⁹ Paranhos da Costa MJR, Huertas SM, Gallo C, and Dalla Costa OA. (2012). Strategies to promote farm animal welfare in Latin America and their effects on carcass and meat quality traits. Meat Science 92, 221-226.

DEMAND FROM CONSUMERS, CIVIL SOCIETY

Affluence in many parts of the world has increased consumer choices and heightened expectations about food production standards. Surveys in Europe and North America found that the majority of consumers care about animal welfare and report a willingness to pay significantly more for animal products they perceive to have come from farm animals raised humanely. Cage-free eggs, for example, enjoy a price premium often more than twice that of cage eggs. Several emerging market industries have benefited from this approach.²⁰ Growing consumer demand, as well as mounting pressure from civil society, organizations—including multinational livestock producer groups, food processing and distribution companies, supermarket groups, restaurant chains, and others—21 are improving animal welfare practices, including instituting cage-free egg procurement policies and eliminating gestation stalls for pigs. Companies such as McDonald's Corporation, Marks & Spencer, Unilever, Nestle and Woolworths (South Africa) have made recent improvements in these areas.

Animal welfare criteria are now being reflected in farm assurance schemes as a result of growing consumer demand for assurances about how animalderived food is produced. Public demand for reassurance about welfare standards might eventually lead to the introduction of an "approval to farm animals intensively" certification system that could require farming competency to be demonstrated to independent assessors.²²

Scoring systems assess how well a producer or supplier is achieving good animal health and welfare practices. One such system is the 5-Step Animal Welfare Rating Standards System developed by the Global Animal Partnership.a The 5-Step system recognizes and rewards producers for their welfare practices, promotes and facilitates continuous improvement, and informs consumers about the production systems they choose to support. To date, more than 2,450 operations, raising more than 147 million animals annually, have been audited and certified to their higher welfare standards by independent, third-party certification companies.

SHAREHOLDER ACTIVISM RELATED TO ANIMAL WELFARE

According to its 2014 Special Report on Shareholder Activism by Socially Responsible Investors, the U.S. organization ProxyMonitor reports that "one of the major story lines this proxy season...is the increased role that social and policy issues have played among shareholder proposals... Of the shareholder proposals introduced at the 219 Fortune 250 companies [as of end of June 2014] to have held annual meetings to date, 48% involved social or policy concerns."23 According to Humane Society International, in December 2013, "a shareholder proposal seeking investor support for Cracker Barrel's shift away from gestation crates became the first animal-welfare related proposal to pass at a major American company, garnering 96% of the shareholder vote."24 At Kraft Foods, a shareholder proposal

Affluence in many parts of the world has increased consumer choices and heightened expectations about food production standards.



²⁰ Source: Developing Animal Welfare: the Opportunities for Trade in High Welfare Products from Developing Countries. RSPCA & Eurogroup for Animal Welfare, http://www.rspca.org. uk/ImageLocator/LocateAsset?asset=document&assetId=1232719194076&mode=prd.

^a See http://www.globalanimalpartnership. org/the-5-step-program/.

²¹ http://www.humanesociety.org/issues/confinement_farm/timelines/timeline_farm_animal_ protection.html.

[.] 22 Cronin, G.M., Rault, J-L. and Glatz, P.C. (2014). Lessons learnt from past experience with intensive livestock production systems. Scientific and Technical Review, Office International des Epizooties 33, 139-151. http://www.oie.int/doc/ged/D13661.PDF.

²³ http://www.proxymonitor.org/Forms/2014Finding4.aspx.

²⁴ http://www.humanesociety.org/issues/confinement_farm/timelines/timeline_farm_animal_ protection.html.

sponsored by the Humane Society looked for Kraft to improve animal welfare standards in its pork supply chain. Management supported the resolution as did 76% of voting shareholders.²⁵

DEVELOPED VS. DEVELOPING COUNTRIES

Developed countries tend to have more financial resources and infrastructure than developing countries to support improvements in animal welfare, including improvements to housing, feeding systems, and transportation; addressing problems such as drought, cold, and predators; and strengthening animal welfare research programs. Developed countries are likely to have a greater number of veterinarians and animal production specialists, more developed industries for vaccine and animal health supplies, and enhanced education and industry awareness regarding animal welfare.

Although developing countries often face significant challenges with regard to resources, knowledge, research, and awareness around animal welfare, they can benefit from the experiences and advanced technology of developed countries. Emerging market producers can position themselves to capitalize on increased market premiums for animal welfare-credentialed products in developed countries where consumer demand and legal requirements related to animal welfare may be present. As awareness about animal welfare issues increases globally, livestock producers in developing countries may be able to benefit from demand in their home markets.

Emerging market producers can position themselves to capitalize on increased market premiums for animal welfarecredentialed products in developed countries where consumer demand and legal requirements related to animal welfare may be present.





²⁵ See ProxyMonitor's 2014 Proxy Season Midterm Report, II Summary of Results, http://www.proxymonitor.org/Forms/pmr_08.aspx and http://ir.kraftfoodsgroup. com/secfiling.cfm?filingID=1545158-14-11&CIK=1545158



Good Management Practices in Animal Welfare

Positive features of livestock production systems should include the potential for better animal nutrition, feed conversion efficiency, health management and environmental control, control over reproduction, genetic selection of better performing animals, and consistency of product quality and delivery to the market place. Taken together, these attributes usually also decrease production costs, generate regular cash flow, and offer a reasonable return on investment. Pig and poultry systems are emphasized here, but intensive dairy, beef, and lamb production systems are also common. Significant welfare risks may, however, arise in all of these systems.

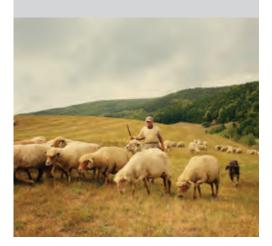
Such welfare risks can be associated with limitations on space in individual stalls restricting the movement of animals, high stocking densities in groups increasing the potential for disease transmission and injurious contact

with others, barren/unchanging environments leading to behavioral problems, feeding diets that do not satisfy hunger, injurious husbandry procedures that cause pain, and breeding for production traits that heighten anatomical or metabolic disorders. In addition, inadequate inputs from knowledgeable and skilled stockpersons may increase welfare risks. (See section on Stockmanship.)

However, these welfare risks may be addressed and mitigated by actions including increasing the space allowance for each animal (e.g., individual to group housing, decreasing group stocking density); providing environmental enrichment (e.g., straw for pigs to manipulate, nest boxes for hens) to stimulate positive emotional states; adding bulk to high energy diets to help satisfy appetite; minimizing the pain from invasive husbandry procedures (e.g., avoiding such procedures; using low-pain methods or analgesics); re-aligning production-orientated genetic selection to include welfare traits (e.g., less aggressive or fearful animals or birds); and increasing the monitoring of individual animals by well-informed stockpersons using direct and/or electronic observation to aid in the early detection and alleviation of health and welfare problems.

The following provides additional details on the good management practices, including genetics and breed selection, animal husbandry, and housing systems.²⁶

Careful selection of stock handlers, and/or educating existing staff to improve their attitudes and stock handling, can improve livestock productivity.



²⁶ Cronin, G.M., Rault, J-L. and Glatz, P.C. (2014). Lessons learnt from past experience with intensive livestock production systems. Scientific and Technical Review, Office International des Epizooties 33, 139-151. http://www.oie.int/doc/ged/D13661.PDF.

Genetics and Breed Selection

- Breeds should be selected for good skeletal and cardiovascular health, low aggression, and suitability for both the environment/ climate and the system in which they are bred.
- Breeding objectives should be assessed not only by production characteristics, but also by rates of injury, disease, and mortality in both breeding stock and offspring. It remains important to discourage breeding selection targets dominated by production traits.
- · Animal breeds or strains chosen should be adapted to the local climate, diseases, parasites, and nutrition.

Historically in broiler chickens, genetic selection and manipulation for fast growth has led to high rates of leg disorders, acute and chronic pain, abnormal gait, respiratory infections, acute death syndrome, and other significant welfare issues, which translate into costs and losses for producers.

Animal Health

- Animals must be maintained in good body condition and remedial action (veterinary attention, improved nutrition, or husbandry) taken when in poor condition, or when there are signs of significant distress, ill-health, disease, or injury.
- Animals should be periodically checked for the presence of parasites, and any corrective treatment deemed necessary to prevent distress and suffering should be administered as soon as possible.
- Any sick or injured animals should be treated or cared for to alleviate pain and distress as soon as practically possible, including being isolated or humanely destroyed if necessary.
- Animals should be confirmed dead before disposal, and any still alive should be euthanized immediately. Dead animals should be removed promptly and disposed of appropriately.
- Veterinary care should be available at all times and medications and treatments given in accordance with advice and instructions. Good record keeping will assist with managing health and disease problems. A preventative health program should be established in consultation with a veterinarian. External audits on animal health are encouraged.

Husbandry Practices

- Animals should be handled using low-stress methods, equipment, and facilities that facilitate calm animal movement.
- Alternatives should be used to routine management practices that cause pain (e.g., dehorning/disbudding, branding, castration, tail-docking, beak trimming), or effective pain relief should be provided. Successful alternatives to painful procedures include, for example, providing straw or other manipulable materials to fattening pigs to reduce tail biting. Where painful procedures cannot be avoided, they should be carried out by a competent and trained operator.

Stockmanship

- There should be a sufficient number of trained and wellmotivated personnel proficient in good stockmanship to maintain animal health and welfare, and ensure that the physical, health, and behavioral needs of animals are met. Stock personnel should not be cruel and should at all times endeavor to avoid causing pain, suffering, or distress to animals.
- Stock personnel should be skilled at handling, preventing, and treating illnesses and diseases, and caring for affected animals, including minimizing aggression. Knowledge of the normal behavior and function of stock is essential and individuals should be able to recognize early signs of ill-health, injury, disease, or distress requiring prompt remedial action.

Animals in intensive farming systems are reliant on humans for most of their needs. Poor interactions between people and their animals limit animal welfare and livestock productivity. People with appropriate attitudes and positive, rather than aversive, behaviors towards animals do not elicit as much fear in their livestock—this is reflected in improved livestock performance (e.g., growth, reproduction, and meat quality).

Stockmanship (continued)

- Staff should be properly trained in humane destruction methods and when to apply them, and should be supplied with the required equipment.
- Animals in intensive systems should be inspected at least daily, or more regularly under circumstances that could affect welfare (e.g., dietary changes, disease outbreaks).
- On-farm surveillance needs particular attention. Its adequacy should be assessed by reviewing the frequency and duration of the checks performed, as well as the level of attention given to individual animals.
- Ongoing professional training programs should be available to stock personnel, and the development of such programs should be encouraged so that a culture of caring and responsible planning and management is developed.
- Stock managers and handlers should have access to a disaster response and recovery plan (e.g., failure of feed or water supply, electricity supply, structural damage, fire or flood). Box 4 explains the benefits of good stockmanship.

Quality Assurance Programs

- Many countries and their producers utilize quality assurance programs to ensure that optimal levels of animal husbandry are maintained. a, b, c
- Quality assurance programs should provide training for the owner, operator, and all staff and require written protocols for production practices, including those directed at animal well-being.
- Assurance programs should dictate continual review of existing systems and practices, especially as new science and technology become available and economically viable.
- Many quality assurance programs apply auditing or assessment procedures, the features of which will depend on the livestock operation, program, and region.

Feed and Water

- Animals should receive a daily diet adequate in composition and quantity, and containing appropriate nutrients to maintain good health, meet their physiological requirements, and avoid metabolic and nutritional disorders. Feed should be palatable and free of contaminants, molds, and toxins.
- Food and water requirements vary with feed composition, physiological state, stage of growth, size and body condition, pregnancy, lactation, exercise and activity, and climate. Access to feed should be at intervals appropriate to the physiological needs of the animals, and at least once daily. Animals should have an adequate daily supply of water that is palatable and not harmful to their health.
- Food and water, including automated feeding and watering systems, should be provided in such a way that all animals have an opportunity to feed or drink without undue competition (including intimidation, bullying, and aggression) likely to cause injury or distress. Feeding and watering systems should be designed, constructed, placed, and maintained to prevent contamination or spoiling, and to minimize spillage.
- Animals on highly concentrated diets may also require access to bulky or high fiber feed to satisfy hunger. Medicated or enriched food and water should only be used on professional advice.
- Reserves of food and water should be maintained to allow for interruption to supply.

^a Australian Pig Quality Assurance (APIQ) Program: http://www.apiq.com.au/.

^b Canadian Pork Quality Assurance Program (CQA): http://www.cqa-aqc.ca/documents/producer-manual/AFEnq1.pdf.

^c US Pork Quality Assurance (PQA): http://www.pork.org/certification/11/pqaplus.aspx#.UvLm_kKSwpl.

Housing Systems

- Animal accommodation should be designed, constructed, and maintained to allow all animals space to stand, stretch, turn around, sit, and/or lie down comfortably at the same time.
- Accommodation should allow all animals to directly interact with herd or flock mates, unless isolated for veterinary or nursing reasons.
- Stocking densities should be low enough to prevent excessive temperatures and humidity; competition, stress, aggression between animals, and abnormal behavior; and to enable good litter management.
- Each operation should have strategies to prevent overheating and excessive cooling. Animals should be protected from abrupt temperature fluctuations and cold drafts.
- All animals should have access to a clean and dry place within the confinement area. Floor litter must be kept free of excessive moisture and be loose and friable in the case of broiler chickens.
- All surfaces and flooring should be non-slip, without sharp projections or edges likely to cause injury, and provide for the animal to bear weight on the entire sole of the foot.
- Housing should be constructed of fire-resistant materials, and electrical
 and fuel installations planned and fitted to minimize fire risk. Firefighting
 equipment and smoke detectors should be installed with sufficient exits
 to enable evacuation of the building in an emergency. There should be
 sufficient drainage to protect animals from flooding.
- All automated systems supplying food and water, removing waste, and controlling temperature, lighting, and ventilation should be checked and maintained regularly, and backup systems should be available in case of failure.
- Natural or artificial light (of an intensity of at least 20 lux) should be available
 in all buildings for a minimum of eight hours daily, and there should be a
 period of darkness sufficient to allow proper rest.
- Air quality should be maintained by minimizing transmission of airborne infectious agents and preventing the buildup of noxious or harmful waste gases, and minimize dust particles.
- Effluent and waste should not be allowed to build up to the extent that accumulation leads to discomfort and compromised welfare.
- Animals should be protected from predators, vermin, and excessive noise.
- Animals with access to, or living outdoors should have access to shade and shelter.

Scientific research shows that certain housing systems have inherent major disadvantages for animal welfare and do not have the potential to provide satisfactory outcomes, for example, systems of extreme confinement of animals or barren environments.

There is an international trend from sow stall use towards group housing systems, with or without limited stall use, in the four-week period after mating. The use of alternatives to farrowing crates is, however, the subject of research to develop a system that delivers benefits to the sow but does not increase piglet mortality and is cost effective. Several alternative systems—including sow pens and group housing—have been adopted and are being used successfully, and efforts are being made to reduce group housing costs.

Transport

- Facilities for loading, transporting, and unloading should be designed, constructed, and maintained to permit proper handling of animals and minimize risk of injury.
- · Catching, handling, and loading should be carried out quietly and confidently by trained and competent personnel, and animals should not be inverted when handled.
- Electric goads or prods should not be used when catching, loading, unloading, or moving pigs. Pigs should be moved with a flat "pig board" rather than with a stick.
- Provision should be made for care of animals during the journey and at the destination. Particular care should be taken with fatigued, old, young, infirm, pregnant, and/or nursing animals.
- Animals should be neither too loosely nor too tightly loaded so as to reduce the risk of excessive movement or overcrowding resulting in injury.
- During transport animals should be protected from extremes of heat and cold and provided with adequate ventilation.
- The distance animals are transported, and the time taken, should be minimized. Where animals are transported over long distances, appropriate provision should be made for feeding and watering.
- Animals should be fit to travel without unreasonable or unnecessary pain or distress. Non-ambulatory and other unfit animals must be promptly and humanely euthanized on-site.
- · Casualty animals should not be transported. However, should an animal become a casualty during a journey, then it should receive immediate veterinary attention or be euthanized without delay.

RESOURCES

Animal Welfare (Transport Within New Zealand) Code of Welfare. Ministry for Primary Industries, Wellington, 2011. http://www.biosecurity.govt.nz/animal-welfare/codes/transportwithin-nz

Australian Animal Welfare Standards and Guidelines

- Land Transport of Livestock. Animal Health Australia, Canberra, 2012. http://www.animalwelfarestandards.net.au/ files/2011/02/Land-transport-of-livestock-Standards-and-Guidelines-Version-1.-1-21-September-2012.pdf

Code of Practice for the Care and Handling of Farm Animals: Transportation. Canadian Agri-Food Research Council, Ottawa, 2001. http://www.nfacc.ca/codes-of-practice/transport

European Convention for the Protection of Animals during International Transport (Revised). Council of Europe.

http://conventions.coe.int/treaty/Commun/QueVoulezVous. asp?CL=ENG&CM=0&NT=193

EU specific animal welfare rules on transport:

http://ec.europa.eu/food/animal/welfare/transport/index_en.htm

Guidelines for the Humane Handling, Transport and Slaughter of Livestock. Food and Agriculture Organization of the United Nations and Humane Society International. http://www.fao.org/docrep/oo3/x6909e/x6909e08.htm

OIE standards for transport of animals by land, air, and sea

http://www.oie.int/animal-welfare/animal-welfare-key-themes/

Slaughter

- Prior to slaughter, proper handling techniques, and lighting, space, and ventilation should be used to keep the animals calm.
- Holding facilities should protect animals from adverse weather, have adequate and uniform lighting, sufficient space to allow animals to stand up and lie down, be well ventilated and drained, and be free from smooth floor surfaces and sharp protrusions.
- Animals should be slaughtered as close as possible to the farm of origin to minimize the rigors of transport.
- Animals should be slaughtered as soon as possible after arriving at the slaughter facility. In cases where animals are kept for long periods prior to slaughter, feed and water must be provided.
- All animals must be handled, restrained, rendered unconscious until death, and slaughtered in the least distressing and most pain-free manner possible by trained and competent staff.
- Contingency plans should be made for animal slaughter or accommodation in the event of the slaughter facility being unable to continue through unforeseen disruption or plant failure.

RESOURCES

Animal Welfare (Commercial Slaughter) Code of

Welfare. Ministry for Primary Industries, Wellington, New Zealand, 2010. http://www.biosecurity.govt.nz/animal-welfare/codes/commercial-slaughter

European Convention for the Protection of Animals for Slaughter. Council of Europe.

http://conventions.coe.int/Treaty/en/Treaties/Html/102.htm

EU specific animal welfare rules on slaughter and

killing: http://ec.europa.eu/food/animal/welfare/slaughter/index_en.htm

Guidelines for the Humane Handling, Transport and

Slaughter of Livestock. Food and Agriculture Organization of the United Nations and Humane Society International. http://www.fao.org/docrep/oo3/x6909e/x6909eoo.HTM

Model Code of Practice for the Welfare of Animals: Livestock at Slaughtering Establishments.

CSIRO Publishing, Collingwood, 2001. http://www.publish.csiro.au/nid/22/sid/11.htm

OIE Standard on Slaughter of Animals

http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_aw_slaughter.htm

US Code of Federal Regulations, Title 9, Chapter 3, Part 313, Humane Slaughter of Livestock,

http://www.gpo.gov/fdsys/granule/CFR-2011-title9-vol2/CFR-2011-title9-vol2-part313/content-detail.html

Aquaculture

- In addition to the relevant good practices above, farmed fish and other aquatic animals have specific requirements and demands that can affect their welfare.
- The water supply should be of sufficient flow, quality, and quantity to ensure the well-being of the species being farmed. The physical environment should be designed, sited, and maintained so as to promote animal health and welfare.
- · All aquatic animals should receive adequate quantities of feed, using the correct nutritional composition for the species farmed, and for their physiological state, especially the stage of growth. Food should be presented in a form and distributed in a manner that ensures that all acquatic animals have sufficient access to the feed supplied.
- The stocking density for fish and other aquatic animals should be adjusted to the specific requirements of the species so as to minimize crowding and stress, aggression, injuries, and ill health. This should take account of the average size of the animal, their health and behavioral needs, the environment, the availability of oxygen, and the removal of waste that may cause stress or toxic effects if allowed to accumulate.
- Any unnecessary distress to the animal should be avoided. Aquatic animals should be kept in good health and inspected frequently to ensure that significant behavioral and physical changes would be detected, and remedial action taken. Proper diagnosis should be made if the presence of disease is suspected. Handling of live fish and other aquatic animals should be kept to a minimum to avoid stress and injury.
- The movement and transport of live fish and other aquatic animals should be done without unnecessary delay, with an adequate oxygen supply, avoiding rapid changes in variables such as temperature and water quality, and in containers designed to eliminate injury.
- Whenever possible, predators should be excluded from the areas where live fish and other aquatic animals are held. Parasites should be controlled where they have the potential to compromise animal health and welfare.
- When aquatic animals are required to be fasted before slaughter to induce a completely empty digestive system, the period of fasting should only be for as long as is necessary. Fish and other aquatic animals should be killed quickly and humanely.

RESOURCES

Best Aquaculture Practices (BAP) Finfish and Crustacean Farm Standards.

Global Aquaculture Alliance.

http://www.gaalliance.org/cmsAdmin/uploads/ bap-fishcrustf-413.pdf

Best Aquaculture Practices (BAP)

Mussel Farm Standards. Global

Aquaculture Alliance. http://www.gaalliance. org/cmsAdmin/uploads/bap-musself-813.pdf

Best Aquaculture Practices (BAP)

Salmon Farm Standards, Global

Aquaculture Alliance. http://www.gaalliance. org/cmsAdmin/uploads/BAP-SalmonF-611S.pdf

Best Aquaculture Practices (BAP) Shrimp Hatchery Standards. Global

Aquaculture Alliance.

http://www.gaalliance.org/cmsAdmin/uploads/ BAP-ShrimpH-612S.pdf

Code of Conduct for Responsible

Fisheries. FAO Fisheries Department. http://www.fao.org/docrep/005/v9878e/ v9878e00.HTM

Code of Conduct for European Aquaculture. Federation of European Aquaculture Producers (FEAP)

http://www.feap.info/Default. asp?CAT2=0&CAT1=0&CAT0=0&SHORTCUT=610

World Organisation for Animal Health (OIE) Aquatic Animal Health Code (Section 7, Welfare of

Farmed Fish) http://www.oie.int/index. php?id=171&L=0&htmfile=titre_1.7.htm

Box 4. The Benefits of Good Stockmanship

Careful selection of stock handlers, and/or educating existing staff to improve their attitudes and stock handling, can improve livestock productivity.

- Handling pigs in an aversive manner, as little as 2–5 minutes three times per week, markedly reduced growth (by 11%) and reproductive performance (pregnancy rates by 62%) in some experimental studies.
- Fear of humans was associated with less efficient feed conversion amongst broiler chickens over 22 commercial farms, and was probably influenced by the quality of stockmanship.
- Fear may also be a factor in limiting the production of layer hens. The responses of birds toward humans accounted for 23–63% of the variation in peak hen-day production over 14 commercial farms.
- Interventions designed to improve the attitude and behavior of people interacting with stock led to an average 4–5% increase in milk yield, milk protein, and milk fat over 94 commercial dairy farms.

Source: Hemsworth PH and Coleman GJ. (2011). Human-Livestock Interactions: the Stockperson and the Productivity and Welfare of Farmed Animals, 2nd Edition. CAB International, Oxon, UK.



IFC's Approach to Animal Welfare

IFC's USD 800 million portfolio (as of June 2014) of investments in livestock and aquaculture projects and production facilities consists primarily of investments in vertical integration of pig and poultry operations, with some beef processing. IFC serves companies in countries with a competitive advantage in livestock production, as well as those in countries in the process of developing, or about to develop, production systems. IFC's approach to animal welfare therefore must balance economic, environmental, and social objectives, while being mindful of clients' objectives and the market environment in which they operate. IFC's approach to animal welfare considers the following:

- Sustainable economic development—IFC recognizes the important relationships between animal welfare, livestock enterprise productivity, animal health, and food safety. IFC is committed to working with clients to reduce losses, increase productivity, and/or access new markets through the application of sustainability principles, including animal welfare standards. IFC values superior animal husbandry practices, recognizing the importance of animal welfare in livestock industries in general and in particular with regard to intensively-managed livestock. IFC took steps to strengthen its commitment to animal welfare in the 2012 edition of PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. PS6 (2012) requires IFC clients who are engaged in the primary production of living natural resources, including animal husbandry, to implement sustainable management of such primary production to one or more relevant and credible standards as demonstrated by independent verification or certification.^{27, 28}
- Cultural differences—While animal welfare standards are based firmly on scientific knowledge and practical experience, IFC is mindful of the animal welfare-related cultural practices of certain individuals and groups. Such practices should be accommodated during the implementation of animal welfare standards and balanced with a realistic assessment of market requirements and social expectations. Changes to husbandry practices need to consider local communities' knowledge, experience, and beliefs, as well as the demands of the international food supply chain.
- Recognizing good practice—The basic needs of animals, as reflected by validated scientific understanding, form the basis of internationally-recognized welfare standards and principles of good practice. IFC aims to promote improvements in animal welfare and encourage innovation by demonstrating business case scenarios for change that are both practicable and achievable, and that focus on animal welfare outcomes (i.e., acceptable states of health and welfare in animals).

DURING THE INVESTMENT PROJECT CYCLE: AT APPRAISAL

Before investing in a livestock operation or enterprise, as part of its due diligence, an IFC Industry Specialist assesses how the client addresses or commits to address animal welfare, using OIE standards as a guide. IFC supports in particular the Guiding Principles for Animal Welfare, the Scientific Basis for Recommendations and the General Principles

²⁷ Specifically, PS6 states, "Clients who are engaged in the primary production of living natural resources, including ... animal husbandry ... will be required to implement sustainable management practices of such primary production to one or more relevant and credible standards as demonstrated by independent verification or certification." ²⁶ A credible certification system would be one which is independent, cost-effective, based on objective and measurable performance standards and developed through consultation with relevant stakeholders, such as local people and communities, indigenous peoples, and civil society organizations representing consumer, producer and conservation interests. Such a system has fair, transparent and independent decision-making procedures that avoid conflict of interest.

for Livestock Production Systems, as detailed in the Chapter 7.1 of the OIE Terrestrial and Aquatic Animal Health Codes. Where IFC clients are looking to enter European markets, IFC works with such clients to achieve European Union standards over the course of the investment project. The IFC Environmental Specialist also plays a key role in appraising projects for broader environmental and social issues, beyond animal welfare, including applicability of PS6 requirements, as it relates to certification of animal husbandry management practices.

IFC has and will continue to decline projects where the system is incompatible with acceptable, science-based animal welfare standards, and where the client is not committed to working with IFC and other agencies to improve its operations where such improvement is considered necessary for the sustainability of the client's business. Where the client is committed to working with IFC and other agencies in these ways, IFC may detail specific benchmarks to be met over the life of the project, which may be reflected in the Environment and Social Action Plan (ESAP) and disclosed in accordance with IFC's Access to Information Policy (2012).²⁹

DURING THE INVESTMENT PROJECT CYCLE: AT SUPERVISION

IFC supervises its investment projects, engaging with clients throughout the life of the project to ensure the client remains committed and has the capacity to successfully achieve IFC's Performance Standards. For primary production in animal husbandry projects, an IFC industry specialist and/or an Environmental or Social Specialist will participate in the supervision to monitor progress status against certification of animal husbandry practices. If appropriate, the status of animal welfare improvements will be reflected in annual updates of the ESAP and disclosed in accordance with IFC's Access to Information Policy. In addition, an annual sub-sector portfolio review will be undertaken for IFC's livestock investments to identify good practice to encourage application of lessons learned.

IFC has and will continue to decline projects where the system is incompatible with acceptable, science-based animal welfare standards, and where the client is not committed to working with IFC and other agencies to improve its operations where such improvement is considered necessary for the sustainability of the client's business.



²⁹ www.ifc.org/aip.

Box 5. Working with clients to encourage good practice

An important part of IFC's role is to transfer not just capital but sector knowledge and technical guidance to clients. As part of its commitment to sustainability, IFC engages with existing and prospective investment clients on applied or recommended animal welfare standards. IFC is committed to encouraging animal welfare good practice by:

- promoting the business case for changes that enhance animal welfare in private-sector livestock operations;
- informing stakeholders about available animal welfare standards and guidelines, including OIE and other relevant standards;
- drawing clients' attention to obligatory animal welfare standards developed by their national governments and by trading blocs, such as the European Union;
- highlighting to clients that food distribution companies and retailers develop their own standards and continue to upgrade them, taking note of OIE standards where available;
- ensuring that animal welfare risks are addressed in all production systems whether they be intensive or extensive in character; and
- sharing resources to assist companies with animal welfare standards in their operations.

WORKING WITH PARTNER ORGANIZATIONS

In addressing animal welfare, IFC is guided by its interactions with key international organizations, including OIE, FAO, the World Veterinary Association, the Commonwealth Veterinary Association, the International Society for Applied Ethology, international primary industry organizations, and international animal welfare NGOs. Some of these groups have already contributed to IFC's animal welfare initiative.

IFC recognizes that animal welfare is not covered by specific World Trade Organization agreements. IFC notes, however, the broad-based support from all stakeholders for OIE's international leadership role in standard setting, on behalf of its 180 members, since 2002. IFC will continue to liaise with OIE to ensure that its lending approaches are compatible with OIE standards.

In addressing animal welfare, IFC is guided by its ongoing interactions with key international organizations.





Resources

PUBLICATIONS

- Animals, Ethics and Trade The Challenge of Animal Sentience, edited by Jacky Turner and Joyce D'Silva (Earthscan, 2006). This book considers the wider context of international animal welfare developments and includes a chapter on "Animal Welfare and Economic development: A Financial Institution Perspective" by Oliver Ryan, IFC. http://103.9.88.89/app/2014–06–22/Animals%20Ethics%20and%20Trade_%20The%20 Challenge%20of%20Animal%20Sentience%20-%20Jacky%20Turner%20(Ed)%20Joyce%20D'Silva%20 (Ed)%20(2006).pdf
- Environmental and Social Management System (ESMS) Implementation Handbook: Animal Production, IFC, 2014. http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/esms_implementation_handbook_animal-production

ORGANIZATIONS

- Compassion in World Farming has liaison status at the FAO and representation in the EU, China, the US and South Africa: www.ciwf.org/resources
- Humane Society International has liaison status at the FAO and representation in the EU, North America, Central and South America, Africa, and Asia: www.hsi.org/farmanimalresearch
- The Eurogroup for Animal Welfare is the Secretariat of the European Parliament group established to consider animal welfare matters: http://eurogroupforanimals.org/
- The Royal Society for the Prevention of Cruelty to Animals has programmes in East Asia, central Africa and East Europe and produced the Freedom Food welfare assurance and food labelling scheme: http://www.rspca.org.uk/sciencegroup/farmanimals/standards
- United Nations Food and Agriculture Organization: The United Nations Food and Agriculture Organization (FAO) is engaged in international animal welfare capacity building, for example, by organizing conferences on implementing good animal welfare practices³⁰, enhancing animal welfare and farmer income through improved animal nutrition³¹ and evaluating the welfare of working animals³². The organization has also established a web-based information exchange, the FAO Gateway to Farm Animal Welfare³³. www.fao.org
- World Animal Net is the world's largest network of animal protection societies with consultative status at the United Nations: www.worldanimal.net
- World Animal Protection, previously the World Society for the Protection of Animals, has been in operation for over 50 years. An international charitable organization, it has regional hubs in Africa, Asia, Europe, Latin America and North America, and offices in 15 countries: www.worldanimalprotection.org/
- World Organisation for Animal Health (OIE): The OIE is the intergovernmental organization responsible for improving animal health worldwide. It is recognized as a reference organization by the World Trade

³⁰ http://www.fao.org/fileadmin/user_upload/animalwelfare/io483e00_1.pdf.

³¹ http://www.fao.org/docrep/017/i3164e/i3164e00.pdf.

³² http://ec.europa.eu/food/animal/welfare/seminars/docs/expert_call_en.pdf.

³³ http://www.fao.org/ag/againfo/themes/animal-welfare/aw-abthegat/aw-whaistgate/en/.

Organization (WTO) and in 2014 has 180 Member Countries. The OIE maintains permanent relations with 45 other international and regional organizations and has regional and sub-regional offices on every continent. www.oie.int

SPECIES-SPECIFIC RESOURCES

Broiler chickens and laying hens

- Animal Welfare (Layer Hens) Code of Welfare. Ministry for Primary Industries, Wellington, New Zealand, 2012. http://www.biosecurity.govt.nz/animal-welfare/codes/layer-hens/index.htm
- Code of Recommendations for the Welfare of Livestock: Meat Chickens and Breeding Chickens. DEFRA
 Publications, London, 2002. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69372/
 pb7275meat-chickens-020717.pdf
- EU-specific Animal Welfare Rules on Laying Hens and Broilers: http://ec.europa.eu/food/animal/welfare/farm/index_en.htm
- Meat Chickens Animal Welfare (Meat Chickens) Code of Welfare. Ministry for Primary Industries, Wellington, New Zealand, 2012. https://www.animallaw.info/administrative/new-zealand-anmal-welfare-code-meat-chickens
- Primary Industries Standing Committee Model Code of Practice for the Welfare of Animals: Domestic Poultry. Fourth edition. CSIRO Publishing, Collingwood, 2002. http://www.publish.csiro.au/nid/22/pid/3451.htm
- Recommended Code of Practice for the Care and Handling of Farm Animals: Chickens, Turkeys and Breeders from Hatchery to Processing Plant. Canadian Agri-Food Research Council, Ottawa, 2003. https://www.nfacc.ca/codes-of-practice/chickens-turkeys-and-breeders
- Recommended Code of Practice for the Care and Handling of Pullets, Layers and Spent Fowl: Poultry Layers. Canadian Agri-Food Research Council, Ottawa, 2003. https://www.nfacc.ca/codes-of-practice/poultry-layers
- US National Chicken Council Welfare Guidelines for Broiler Chickens http://www.nationalchickencouncil.org/industry-issues/animal-welfare-for-broiler-chickens/

PIGS

- Animal Welfare (Pigs) Code of Welfare. Ministry for Primary Industries, Wellington, New Zealand, 2010. http://www.biosecurity.govt.nz/animal-welfare/codes/pigs/index.htm
- Code of Recommendations for the Welfare of Livestock: Pigs. DEFRA Publications, London, 2003. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69369/pb7950-pig-code-030228.pdf
- EU-specific Animal Welfare Rules on Pigs: http://ec.europa.eu/food/animal/welfare/farm/pigs_en.htm
- Primary Industries Standing Committee Model Code of Practice for the Welfare of Animals: Pigs. Third edition. CSIRO Publishing, Collingwood, 2008. http://www.publish.csiro.au/nid/22/pid/5698.htm
- Recommended Code of Practice for the Care and Handling of Farm Animals: Pigs. Canadian Agri-Food Research Council, Ottawa, 2014. https://www.nfacc.ca/codes-of-practice/pigs

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