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## ***Comparison of National and International Standards of Good Egg Production Practices***

### **ABSTRACT**

Egg production is an important economic activity in Brazil, with about 697 million eggs produced annually. The conventional cage system is commonly used for egg production. However, there has been a growing concern for the welfare of laying hens around the world. In this context, many countries have issued laws, protocols, and other normative technical specifications to ensure the welfare of layers. This study aims at identifying similarities and differences between international standards and Brazilian protocols using the Comparative Law perspective. This article reports an analytical study of selected protocols, performing three analyses using the Comparative Law method. The research concludes that some items of the Brazilian protocols of good egg production practices, such as farm inspection, treatment of diseases, temperature, ventilation, beak trimming, feed and water supply, correspond to international specifications, whereas others, such as housing, freedom movement, use of equipment, and transport, are less strict.

### **INTRODUCTION**

Egg production is an important segment of agribusiness. This economic activity is regulated by the Brazilian Federal Constitution of 1988, its primary objective is to eradicate hunger in the country, according to the agrarian structure, as determined by Article 3 of the Constitution.

There is no specific animal welfare legislation in Brazil. Federal Act n. 9.605/98 provides for criminal and administrative sanctions for attitudes and activities that harm the environment, but it does not explicitly address the use of animals in livestock production activities. Bill of law n. 215/07 proposes the establishment of a Federal Animal Welfare Code. This bill includes several provisions for the protection of pets and livestock; however, it is waiting for consideration by the House of Representatives since 2012.

Member countries of the European Union already have specific legislation on the welfare of farm animals, established in regulations and directives of the European Council. In the United States, farm animal welfare is also considered in the recommendations of the Health and Safety Code of the State of California, USA. In this state, an act came into force as of 2015 banning the rearing of laying hens in conventional cages (CDPH, 2014).

In Brazil, two protocols were issued with the purpose of providing guidelines to the relative to the technical egg production specifications, and of ensuring egg quality and safety and the productivity of this industry. These protocols are the Protocol of Good Egg Production Practices, developed by the Brazilian Animal Protein Association (ABPA,



2008) and the manual of Good Practices in Commercial Egg Production, developed by the Brazilian Agricultural Research Agency (Embrapa, 2006).

The international protocols of good egg production practices published to date are: Code of Recommendations for the Welfare of Livestock: Laying Hens (Department for Environment, Food & Rural Affairs - DEFRA, UK), Welfare Standards for Laying Hens (Royal Society for the Prevention of Cruelty to Animals - RSPCA, UK), and the Environmental, Health, and Safety Guidelines for Poultry Production (International Finance Corporation - IFC, member of the World Bank). These documents are based on the legislation in force in each national state where they apply, and provide guidelines for the compliance of the legal requirements.

Ensuring animal welfare, while not causing production losses, has become a worldwide priority. The objective of this study was to compare Brazilian and international standards for the welfare of laying hens, using the Comparative Law approach described by Marc Ancel (1980).

## **MATERIAL AND METHODS**

The Comparative Law (Ancel, 1980) approach was used to compare Brazilian and international standards for the welfare of laying hens. The following published international protocols of good practice were included: Code of Recommendations for the Welfare of Livestock: Laying Hens (Department for Environment, Food & Rural Affairs - DEFRA), Welfare Standards for Laying Hens (Royal Society for the Prevention of Cruelty to Animals - RSPCA), and the Environmental, Health, and Safety Guidelines for Poultry Production (International Finance Corporation - IFC). The Brazilian protocols analyzed were the Protocol of Good Egg Production Practices (ABPA, 2008) and the Manual of Good Practices in Commercial Egg Production (Embrapa, 2006).

### **a) Good Practices in Commercial Egg Production – Technical Guidelines 49/2006, EMBRAPA**

The Swine and Poultry unit of the Brazilian Agricultural Research Agency (Embrapa), located in the city of Concordia, state of Santa Catarina, published a set of animal welfare guidelines for commercial egg production (Technical Guidelines 49/2006). The objective of the document is to establish procedures and standards to ensure egg quality. Because eggs

are extensively consumed worldwide, inadequate production practices may compromise their nutritional value and pose risks to consumers' health (Embrapa, 2006). However, this document established only guidelines, and their compliance by egg producers is not mandatory.

### **b) Protocol of Good Egg Production Practices – ABPA**

This protocol was developed by the Brazilian Association of Animal Protein (ABPA). It is more comprehensive and detailed than the Technical Guidelines of Embrapa, because, in addition of the recommendations of Embrapa, it is also based on the Draft Code of Hygienic Practice for Eggs and Egg Products of the Codex Alimentarius, and on egg production manuals of Brazilian and foreign companies (ABPA, 2008). The Protocol includes guidelines from hen housing to the final egg destination of eggs. However, they may need to be adapted to the different production settings, taking into account climatic and geographical conditions of each region, and the volume of production. As well as the Embrapa's Technical Guidelines, the compliance with the ABPA Protocol guidelines is not mandatory.

### **c) Code of Recommendations for the Welfare of Livestock: Laying Hens – Defra**

The code was published by the Department for Environment, Food and Rural Affairs (DEFRA) of the UK in 2002. It intends to encourage egg producers to adopt the highest standards of raising animals, considering that without good stock management, animal welfare can never be adequately safeguarded (Defra, 2002). This code is applicable only in England, replacing part of the part of the existing Domestic Fowls Code (issued in 1987), relating to the welfare of laying hens.

In the Code, each standard is followed by the regulations in force, so that the producers are aware of the provisions of the law and the penalties for non-compliance. The document is based on the five freedoms of animals, which, according to the theory of animal welfare, are: freedom from hunger and thirst; freedom from discomfort; freedom from pain, injury or disease; freedom for expressing natural behavior and; freedom from fear and distress.

### **d) Welfare Standards for Laying Hens– RSPCA**

The Royal Society for the Prevention of Cruelty to Animals (RSPCA) is a registered charity in England and



Wales, which mission is “by all lawful means, prevent cruelty, promote kindness to and alleviate suffering of all animals”. The standards, published in 2013, includes specific guidelines for the rearing, handling, transport, and slaughter of laying hens. The document is based on legislation, government welfare codes, scientific research, professional guidance, as well as on Defra’s Code. The five freedoms of animals to be respected by producers and the government are also mentioned in the text.

In addition, the RSPCA has a monitoring system and audit farms of producers who apply the standards, because it values the constructive feedbacks and ideas for improvement provided by the farmers.

### **e) EHS Guidelines for Poultry Production – IFC**

The International Finance Corporation (IFC) is the largest global development agency focused on the private sector and is part of the World Bank Group. It has published several guiding documents on good animal production and welfare practices, including poultry (IFC, 2015).

The EHS Guidelines for Poultry Production contains information relevant for intensive poultry production systems, including ducks and turkeys, and the guidelines are based on general technical criteria to ensure good practices. The document is applicable in the United States, but may be applied in other countries (IFC, 2007).

The documentary research survey should include three steps: document selection and source identification; document access and information collection; and data analysis and processing (Gil, 2002; Godoy, 1995). The present study complied with these requirements. Documents that included egg production and layer welfare requirements, as described above, were intentionally selected. All documents were accessed on the official websites of the institutions that developed the guidelines. Documents were analyzed using the Comparative Law approach (Ancel, 1980), to compare Brazilian and international standards of good egg production and laying hens welfare practices.

Three analyzes were carried out. The objective of the first analysis was to identify if selected technical requirements established by the protocols were mandatory, recommended, or not provided. The selected technical requirements were: labor training, traceability, farm inspection, treatment of diseases, temperature and ventilation, lighting limits, availability of litter and nests, noise limits, housing and freedom

of movement, beak trimming, feeding and water supply, use and installation of equipment, egg collection and storage, bird transportation, chick and pullet management practices, waste collection and management, biosecurity, and labor health and safety.

The selected documents were then analyzed in details to determine the main differences in the technical requirements established in the protocols, beyond the analysis of the presence or not of the requirements.

Finally, the third analysis consisted in comparing the local scope of each protocol, i.e., their motivational causes, including as cultural, governance and economic systems. The reason is that comparative law entails not only comparing the textual aspects of the different regulations, but also the environment in which they operate in order to obtain more comprehensive results.

As the overall objective of the analyses was to identify if the Brazilian layer welfare standards complied with those established internationally, all precepts established by documentary research and the Comparative Law approach (Ancel, 1980) were followed.

## **RESULTS AND DISCUSSION**

### **Technical requirements of the guidelines**

Guideline comparison (Table 1) shows that Brazilian protocols, similar to international standards, include requirements relative to labor training, traceability, bird inspection, temperature and ventilation, beak trimming, and feeding and water supply. However, although both Brazilian and national and international standards establish requirements on these topics, this does not mean that they are identical, as commercial egg production practices may be specific to each country.

In some topics, Brazilian guidelines are not consistent with international standards. Brazilian protocols only list recommendations to the producer or do not provide any specifications for aspects such as noise limits, egg collection and storage, and waste collection. For instance, the ABPA protocol provides only recommendations, but not requirements for such aspects.

On the other hand, labor health and safety and chick and pullet management are not mentioned in international protocols. These aspects are included in ABPA and Embrapa guidelines, and are considered extremely important requirements.



**Table 1** – Requirements of national and international protocols.

| ITEM                              | EHS          |              |              |              |              |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|
|                                   | DEFRA        | RSPCA        | STANDARDS    | ABPA         | EMBRAPA      |
| Staff Training                    | Mandatory    | Mandatory    | Recommended  | Mandatory    | Mandatory    |
| Traceability                      | Mandatory    | Mandatory    | Mandatory    | Mandatory    | Mandatory    |
| Bird inspection                   | Mandatory    | Mandatory    | Not provided | Mandatory    | Mandatory    |
| Treatment of diseases             | Mandatory    | Not provided | Mandatory    | Mandatory    | Mandatory    |
| Temperature and Ventilation       | Mandatory    | Mandatory    | Not provided | Mandatory    | Mandatory    |
| Lighting limits                   | Mandatory    | Mandatory    | Not provided | Mandatory    | Not provided |
| Availability of litter and nests  | Mandatory    | Not provided | Not provided | Not provided | Mandatory    |
| Noise limits                      | Mandatory    | Mandatory    | Not provided | Recommended  | Not provided |
| Shelter and freedom of movement   | Mandatory    | Mandatory    | Not provided | Not provided | Not provided |
| Beak trimming                     | Mandatory    | Mandatory    | Not provided | Mandatory    | Mandatory    |
| Feeding and water supply          | Mandatory    | Mandatory    | Recommended  | Mandatory    | Mandatory    |
| Use and installation of equipment | Mandatory    | Not provided | Not provided | Not provided | Mandatory    |
| Egg collection and storage        | Not provided | Not provided | Not provided | Mandatory    | Mandatory    |
| Bird transportation               | Mandatory    | Mandatory    | Not provided | Not provided | Mandatory    |
| Chick and pullet management       | Not provided | Not provided | Not provided | Mandatory    | Mandatory    |
| Waste collection and management   | Mandatory    | Mandatory    | Mandatory    | Recommended  | Mandatory    |
| Biosecurity measures              | Not provided | Mandatory    | Not provided | Mandatory    | Mandatory    |
| Labor health and safety           | Not provided | Not provided | Mandatory    | Mandatory    | Mandatory    |

## Technical specifications

Similarities between the Brazilian and international guidelines were observed (Table 2) relative the following items: labor training – all guidelines provide that workers should be trained to work with hazardous products; bird inspection, which varies between one and three times daily; treatment of diseases, in all standards, except for the RSPCA, which establishes the need for pest and disease control programs or plans; feeding and water supply, establishing that water should be abundantly available, the birds' nutritional requirements supplied, and that birds should have free access to drinkers and feeders.

Other technical specifications, such as temperature and ventilation limits, transport of laying hens, and waste collection and management, are similar between the regulations, but not identical. All guidelines establish record-keeping requirements to ensure production traceability, but at different stages.

Beak-trimming requirements were different between Brazilian and international guidelines. The Brazilian protocols establishes that the beak should be trimmed when birds are 7-10 days old chick using a blade at temperature higher than 550° C, whereas the international protocols require labor training, and beak trimming at one-day-old using infrared devices.

The Brazilian ABPA protocol is very similar to the RSPCA and Defra guidelines, but also establishes some specifications that are not addressed by international standards, such as egg collection and storage, chick

and pullet management chicks and pullets, biosecurity, and labor health and safety.

## REGIONAL ASPECTS

### England and United Kingdom

Defra guidelines are applicable in England, and those of the RSPCA are applicable in the United Kingdom and the European Union. Some countries of the European Union follow the Romano-Germanic legal system, which rules of conduct are established in a systematic code, which disciplines social relations, describes behaviors, the effects of expressions of will, and punishments. Other countries, such the UK, apply the Common Law system, which restricts the power of the government to interfere in private relationships (Sztajn & Gorga, 2005).

Sztajn & Gorga (2005) emphasize that the Common Law system is independent of a hierarchical command and social sanctions may be more efficient and effective to induce behaviors – because it derives from practices, morality, and ethical principles – than positive standards that often do not represent the interests of a significant part of the population. In addition, countries that apply the Common Law system tend to be more prosperous because their rules are more efficient for the economy, as they protect shareholders and creditors, according to the legal tradition of each country.

Defra publishes a quarterly report on UK egg production statistics, called United Kingdom Egg





**Table 2** – Comparison of technical aspects stipulated in national and international protocols.

| ITEM                              | EHS  |   |  |   |   |
|-----------------------------------|--|---|--|---|---|
|                                   | DEFRA  | RSPCA   | STANDARDS  | ABPA  | EMBRAPA   |
| Staff Training                    | All farm sectors   | All farm sectors  | Use of hazardous products  | All farm sectors  | Manipulation of organic fertilizers   |
| Traceability                      | Feed, water, health, and animal behavior   | Housing density, feed, water, house temperature and ventilation                   | Effluent emissions, resource utilization, food   | Housing density, inputs, minimum and maximum temperatures in houses with automatic ventilation, all farm sectors  | Feedstuffs and food additives   |
| Bird inspection                   | 1x daily   | 3x daily  |  | 1x daily  | 2x daily  |
| Treatment of diseases             | Poultry Health and Welfare Program   |   | Biosecurity protocol, animal control, feed, equipment and personnel                              | Pest and disease control plan   | Pest and disease control plan   |
| Temperature and Ventilation       | No direct exposure to sunlight   | T 26°C / RH 75%   |  | T 15-27°C / RH 40-65%   | T 32°C  |
| Lighting limits                   | Light intensity: 5-10 lux  | 8 hours continuous light / 6 hours continuous darkness / light intensity: 20 lux  |  | Uniform lighting throughout the house. Photoperiod according to the age and physiological status of the laying hens   |   |
| Availability of litter and nests  | Fresh, depth 10cm  |   |  |   | Dry, depth 10cm   |
| Noise limits                      | Minimum sound level  | Minimum sound level   |  | Minimum sound level   |   |
| Shelter and freedom of movement   | Place should enable the fulfillment of birds' biological needs, provide shelter from adverse weather conditions, and facilitate good bird management | Facilities should be well maintained and a litter area to rest should be provided |  |   |   |
| Beak trimming                     | Trained staff  | Chicks at 1 day of age / infrared equipment                                       |  | Birds with 7-10 days / Blade temperature: 550-750°C. Control feed intake  | 1 <sup>st</sup> beak trimming: 7-10 days of age / 2 <sup>nd</sup> beak trimming: 10-12 weeks of age   |
| Feed and water supply             | Abundant water, supply nutritional requirements, sufficient access to feeders  | Abundant water, supply nutritional requirements, sufficient access to feeders     | Feed protection from rain and wind during manufacturing, storage, transport and feeding of birds | Abundant water, supply nutritional requirements, sufficient access to feeders   | Abundant water, supply nutritional requirements, sufficient access to feeders   |
| Use and installation of equipment | Regularly cleaning and inspection of equipment   |   |  |   | Adequate technical information on all pieces of equipment   |
| Egg collection and storage        |  |   |  | If not automated, eggs should be collected 4x daily / eggs must be selected and classified, separated by weight, packaged and identified / storage in cool and clean room | If not automated, eggs should be collected 4x daily / eggs must be selected and classified, separated by weight, packaged and identified / storage in cool and clean room |
| Bird transportation               | Crates with large openings   | Adequate ventilation in shipping crates / trained staff                           |  |   | Fasting for 4 hours before loading / appropriate crates to prevent injuries   |
| Chick and pullet management       |  |   |  | Chicks purchased from and vaccinated in hatcheries licensed by the Ministry of Agriculture  | Chicks purchased from and vaccinated in hatcheries licensed by the Ministry of Agriculture  |
| Waste collection and management   | Avoid exposure of birds to gases or discomfort   | Dry waste kept covered and hygienically managed                                   | Integrated Nutrition Plan Management: dry residue  | Composting of solid waste   | Waste composting and recycling  |
| Biosecurity measures              |  | Policy to prevent diseases  |  | Daily records of mortality / staff disinfection / all-in, all-out system  | Security fencing and isolation of the poultry house/ all-in, all-out system   |
| Labor health and safety           |  |   | Use of PPE / training falls / information on risks   | Health and Safety program: use of PPE / accident prevention plan / manual of accidents and incidents  | Use of PPE / isolated toilets   |



Statistics (Defra, 2014). According to the report of the 3<sup>rd</sup> quarter of 2014, about 25,000 tons of eggs were produced in the UK, representing a 2% increase relative to the previous quarter. The egg production sector has steadily grown in the UK, and egg imports were reduced by 10% relative to the same period of the previous year.

According to Horne & Achterbusch (2008), in Western Europe, the UK has one of the highest levels of animal welfare and income regulations. Outside Europe, only the United States, Canada, Australia, and New Zealand have established animal welfare standards.

### **European Union**

The RSCPA standards are also applicable in the European Union, which requires the compliance with the legislation of the country in which they are applied.

European Commission countries established the "Common Agricultural Policy" (CAP) in 1962. Its main objectives are to increase agricultural productivity, ensure a reasonable standard of living for farmers, ensure food security, and protect the rural areas of the EU and the sustainable management of natural resources. CAP is divided into three interconnected parts: market support, income support, and rural development (European Commission, 2014). The effectiveness of CAP allows European farmers to meet the consumers' needs at accessible prices and with high nutritional quality. European farmers produce seven million tons of eggs annually (European Commission, 2014).

As a result of the European Council Directive 1999/74/EC, which established that by 2012, all conventional cages should be replaced by enriched cages or alternative systems, egg production in barn and free-range systems is growing, according to Horne & Achterbusch (2008).

### **United States and Brazil**

Although Brazil and the United States have the same political republican presidential system, their legal systems belong to different families. In Brazil, the Romano-Germanic system is applied, whereas in the US, the legal system is the Common Law, which is based on practices of society, not in positive laws like in Brazil (Sztajn & Gorga, 2005).

In the United States, the State of Iowa is the largest egg producer, with about 52 million laying hens. The State of California is the fifth largest egg producer,

with about 19 million laying hens, and has recently issued a law, effective since 2015, banning the sales of eggs produced in cage systems and under conditions that do not meet the welfare requirements of laying hens (California, 2009).

According to Silva (2012), animal production in the United States is strictly an economic activity, and does not take into account ethical issues. However, due to consumers' pressure, animal welfare concepts have been adopted.

The World Trade Organization have demanded national governments to make farmers accountable for the welfare of the animals they rear. This was demanded by consumers, who are concerned with food quality and with the protection of animal welfare (Silva, 2012).

In Brazil, the ABPA protocol of Good Egg Production Practices provides guidelines for producers, but are enforceable by the Brazilian legislation.

In the state of São Paulo, the recent Bill N. 714/12 proposes to ban the production of all livestock in intensive confined systems, including egg production in conventional cages, and provides for administrative and fiscal penalties in case of law infringement. However, its approval by the Legislative Assembly is still pending (State of São Paulo, 2012).

According to the Brazilian Institute of Geography and Statistics (IBGE), chicken egg production in the 4<sup>th</sup> quarter of 2013 was 697.250 million of dozens, representing a 4.7% increase relative to the previous year. The largest concentration of egg production in Brazil is in the Southeast region, accounting for 48.5%, followed by the South (21.5%), Midwest (13.9%), Northeast (13.5%), and North (2.6%) (IBGE, 2014).

## **CONCLUSIONS**

Brazilian welfare protocols for laying chickens are less advanced than the international norms in terms of housing and freedom of movement, use and installation of equipment, and transportation, as they do not provide any requirements on these matters. The Brazilian guidelines on farm inspection, disease treatment, housing temperature and ventilation, beak trimming, and feed and water supply are similar to those included in international standards. On the other hand, some technical aspects, such as egg collection and storage, chick and pullet management, biosecurity measures, and labor health and safety, described in the Brazilian protocols are not mentioned or are not detailed in the international protocols.



Regarding regional aspects, Brazil is less advanced in terms of animal welfare compared with European countries and the United States of America, as there is no legal framework with specific legislation or effective policies for the protection of the welfare of laying hens.

## REFERENCES

- ABPA – Brazilian Association of Animal Protein. Protocol of good practices for egg production [cited 2014 Nov 14]. 2008. Available from: <http://www.ubabef.com.br/publicacoes?m=82>.
- ANCEL M. Utility and methods fo comparative law. Porto Alegre: Fabris; 1980. 159p.
- CALIFORNIA. Bill analysis senate food and agriculture committee. Bill nº AB1437 [cited 2014 Nov 20]. 2009. Available from: <http://leginfo.ca.gov/faces/billAnalysisClient.xhtml>.
- CDPH – California Department of Public Health. California health and safety code [division 104, part 5] [cited 2014 Apr 14]. 179p. Available from: <http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc>.
- DEFRA – Department for Environment Food & Rural Affairs. Laying hens code of recommendations for the welfare of livestock [cited 2014 Nov 15]. 2002. 32p. Available from <https://www.gov.uk/government/publications/code-of-recommendations-for-the-welfare-of-livestock-laying-hens>.
- DEFRA – Department for Environment Food & Rural Affair. United Kingdom egg statistic: quarter 3, 2014. [cited 2014 Nov 20]. Available from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/371027/eggs-statsnotice-06nov14.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/371027/eggs-statsnotice-06nov14.pdf).
- EMBRAPA. Good commercial egg production practices [technical circular 49]. [cited 2014 Nov 15]. Concórdia (SC); 2006. 40 p. Available from: <https://www.embrapa.br/suinos-e-aves/busca-de-publicacoes/-/publicacao/443776/boas-praticas-de-producao-na-postura-comercial>.
- ENGLAND. The british monarchy: how the monarchy works [cited 2014 Dec 20]. Available from: <http://www.royal.gov.uk/MonarchUK/HowtheMonarchyworks/HowtheMonarchyworks.aspx>
- EUROPEAN COMISSION. Agriculture: a partnership between Europe and farmers [cited 2014 Dec 20]. Luxembourg: EU Publications Office; 2014. Available from: [http://europa.eu/pol/pdf/flipbook/pt/agriculture\\_pt.pdf](http://europa.eu/pol/pdf/flipbook/pt/agriculture_pt.pdf).
- GIL, A. C. Como elaborar projetos de pesquisa. 4th ed. São Paulo: Atlas; 2002.
- Godoy AS. Pesquisa qualitativa: tipos fundamentais. Revista de Administração de Empresas 1995; 35(3):20-29.
- Horne PLMV, Achterbosch TJ. Animal welfare in poultry production systems: impact of EU standards on world trade. World's Poultry Science Journal 2008;64(1).
- IBGE – Instituto Brasileiro de Geografia e Estatística. Indicators: statistics of livestock production [cited 2014 Dec 20]. Available from: [http://www.ibge.gov.br/home/estatistica/indicadores/agropecuaria/producaoagropecuaria/abate-leite-couro-ovos\\_201304\\_publica\\_completa.pdf](http://www.ibge.gov.br/home/estatistica/indicadores/agropecuaria/producaoagropecuaria/abate-leite-couro-ovos_201304_publica_completa.pdf).
- IFC – International Finance Corporation. Environmental, health, and safety guidelines for poultry production. World Bank Group; 2007. Available from: <http://www.ifc.org/wps/wcm/connect/26baaf004886581fb43ef66a6515bb18/Final%2B-%2BPoultry%2BProduction.pdf?MOD=AJPERES>.
- IFC – International Finance Corporation. About IFC [cited 2015 Feb 20]. Available from: [http://www.ifc.org/wps/wcm/connect/Multilingual\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/Home\\_PT](http://www.ifc.org/wps/wcm/connect/Multilingual_Ext_Content/IFC_External_Corporate_Site/Home_PT).
- MAPA. Ministério da Agricultura, Pecuária e Abastecimento. It establishes procedures for registration, surveillance and Poultry Establishments Control playback and Commercial [Instruction 56, 2007]. 15thed. São Paulo: Saraiva; 2013.
- RSPCA – Royal Society for the Prevention of Cruelty to Animals. Welfare standards for laying hens [cited 2014 Nov 15]. United Kingdom; 2013. 76p. Available from: <http://science.rspca.org.uk/sciencegroup/farmanimals/standards/layinghens>.
- STATE OF SÃO PAULO. Bill nº 714/2012: It provides for prohibition of breeding in confinement systems in the state [cited 2014 Dec 20]. São Paulo: Legislative Assembly; 2012. Available from: <http://www.al.sp.gov.br/propositura/?id=1111291>.
- SZTAJN R, GORGA E. Law rraditions. In: ZYLBERSZTANJ D, SZTANJ R, editors. . Rio de Janeiro: Law& Economics; 2005. p.137-196.
- UNITED KINGDOM. How government works [cited 2014 Dec 20]. Available from: <https://www.gov.uk/government/how-government-works>.



