

BROILER WELFARE, EU STANDARDS AND WORLD TRADE

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ABSTRACT

Broiler welfare receives more legislative attention in the European Union (EU) than in many other regions of the world. Animal welfare standards for broilers are generally taken to be higher in the EU than in producing countries exporting to the EU, particularly developing countries. The recent action plan for animal welfare introduced by the European Commission aims to further expand the body of regulatory standards. In broiler production worldwide, birds are mainly kept on litter. Recently the EU agreed on a new Directive to set standards for maximum bird density. However, this is not considered likely to have a great impact on global trade. At present, the difference in broiler conditions, including bird density. The EU is considering the use of labelling to provide consumers with more information concerning the standard of production. Another option could be to use financial mechanisms such as taxes or tariffs to prevent imports from other countries with lower standards. The likelihood of a measure being challenged would depend on how difficult it was for exporters outside the EU to meet the requirements.

Keywords: broiler, breeding, welfare, production; economics; world trade

INTRODUCTION

Welfare is clearly a characteristic of an individual animal and is concerned with the effects of all aspects of its genotype and environment on the individual (**Davies and Weeks, 1995**). **Broom (1986)** defines it as follows: the welfare of an animal is its state as regards its attempts to cope with its environment. Welfare therefore includes the extent of failure to cope, which may lead to disease and injury, but also ease of coping or difficulty of coping and the associated disease and injury. Furthermore, welfare includes pleasurable mental states and unpleasant states such as fear and frustration. Good welfare can occur provided the individual is able to adapt to or cope with the constraints it is exposed to. Hence, welfare varies from very poor to very good and can be scientifically assessed. The word stress is used by some authors when there is failure to cope (**Fraser and Broom, 1990**), but others use it for any situation in which an organism is forced to respond to environmental challenge (**Zulkifli and Siegel, 1995**).

The aim of this work was the analysis of literary knowledge on the status of broiler welfare in the EU, study welfare of broilers at poultry farm in Slovak Republic, broiler production and market in the EU, in the world and development in the Slovak Republic.

MATERIAL AND METHODOLOGY

The object of study was broiler status in EU and its comparison with other important states in broiler production.

We focused our attention on the indexes:

- animal welfare and status in EU and in world (analysis of literary knowledge),
- international trade in broiler meat (analysis of literary knowledge),
- status of broiler welfare in Slovak Republic (study of the available methods deviations from the natural behavior vitality, feed and water intake, growth ability, compound feed starter, grower, finisher and content of nutrients and metabolizable energy per 1 kg of feed mixtures, effectivity of fattening),
- production and sale of slaughter broilers in the Slovak Republic (**Jamborová, 2008**).

RESULTS AND DISCUSSION

Animal welfare and status in EU and in the world

Farm animal welfare is assessed by a combination of indicators of its physical and mental components. The scientific methods that are available for selecting these indicators, and establishing and interpreting scores, are detailed in several reviews (**Broom, 1993; Broom and Johnson, 1993; Puppe, 1996**). In general, minimum mortality, low morbidity, little or no risk of injury, good body condition, the ability to express species-specific activities including social interactions, exploration, and play, and the lack of abnormal behaviour and of physiological signs of stress, including alterations of immune responses, indicate that there are no major animal welfare problems. **McKay (1997)** predicted that in the 30 years between 1976 and 2007, broiler weight at 42 days will have increased threefold and the age at 2.0 kg will have decreased by one day per year. In 1976 the amount of feed a broiler needed to eat to reach 2.0 kg body weight was 5.0 kg, in 1997 it was 3.3 kg, and in 2001 the prediction is it will be 3.0 kg. In association with the continuing selection for improved production performance, there have been changes in carcass composition and conformation, in growth, metabolism, digestion, endocrine and immune system, brain function, and in behaviour. Many of these changes were reviewed in a recent OECD-Workshop on broiler production (**Ellendorff et al., 1995**).

Table 1: Range of broiler production parameters in European countries (**Bardi et al., 1997**)

Parameter	Typical Reported Ranges
Slaughter Weight (g)	1440 – 2310
Slaughter age (days)	36 – > 50
Stocking density	
(No. per square meter)	11.0 – 25.4
(kg per square meter)	22.5 – 42.5
Mortality (%)	4.1 – 7.1

In the world the number of chickens involved in commercial meat production can be estimated to be 20x109 broilers and 180x106 breeding birds. Most of this production is concentrated in few countries with U.S.A. representing 24%, China 18.5% and EU 14% of the world production.

Heavy birds show a reduced capacity for antibody production (**Qureshi and Avenstein, 1994**). This can partly explain an increased mortality due to reduced resistance to infectious agents but most of the health problems encountered in broilers are either cardiac (ascites and sudden death) or leg (tibial dyschondroplasia) problems. These two types of metabolic diseases are far more frequent in heavy lines than in control or light lines of chicken but can be very variable from line to line. For example **Rauw et al. (1998)** report an incidence of tibial dyschondroplasia as high as 47.5% in one commercial line whereas this problem was far less frequent in most of the commercial crosses. According to the strain, the type of problem studied and the method used for its calculation, heritabilities of leg problems varies from 0 to 0.5 (**Le Bihan-Duval, 1995**). Following a long period of discussion among the member states, in May 2007 the European Commission agreed on a new Directive covering the welfare of broilers (**European Commission, 2007**). All European producers will have to meet minimum standards by June 2010. According to the EU Commissioner, the Directive was needed because EU consumers repeatedly expressed concern at the welfare problems arising in intensive chicken farming. The main provision of **Directive 2007/43/EC** is to reduce the stocking density by setting a maximum density of 33 kg per square meter. Under certain conditions, with a good ventilation and temperature control system, the maximum can be 39 kg per square meter. Under exceptionally high welfare conditions, the density can be increased by a further 3 kg per square meter. This can be achieved by low mortality rates. The Directive also sets conditions covering lighting, litter, feeding and ventilation requirements. Although scientists include more aspects when assessing the welfare of broilers, such as the high growth rate, leg and foot disorders, ascites and respiratory problems (**SCAHAW, 2000**), in this paper it is assumed that the welfare of broilers, according to the EU Directive, can be measured by bird density and mortality. In the EU there was previously no regulation on broiler welfare. However, Denmark and Sweden already had a maximum density of 40 kg per square meter and 36 kg per square meter poultry house respectively (**Berg and Algiers, 2004**).

Also in Germany and the UK, the density was controlled by voluntary guidelines. Switzerland, not a member of the EU, maintains a stringent limit for broiler production of 30 kg per square meter poultry house. As far as the authors are aware, there is no other country outside Europe with any regulation and legislation on maximum broiler density. In the U.S.A, the National Chicken Council has developed Animal Welfare guidelines to ensure the proper care, management and handling of broilers. However this is a voluntary guideline for the US industry. In this guideline, the bird density (with a live weight between 2.0 and 2.5 kg) is 38 kg per square meter poultry house (**Hess et al., 2007**). In Brazil there are no regulations on the density of broilers. Due to the warm climate, Brazilian farmers keep broilers at a relatively low density of approximately 35 kg per square meter. Poultry welfare is given more legislative

attention in the EU than in many other regions. The EU position is partly induced by specific features of the production environment. In addition, policy makers claim that EU consumers have increasing preferences for the welfare of production animals (**European Commission, 2006a**). Broilers are generally held in large groups in either environmentally controlled housing or open, naturally ventilated poultry houses or in smaller groups on free range. Broilers are usually kept free loose housed on litter with (automated) provision of feed and water. In most countries, commercial breeds are used which are selected for rapid growth; slower growing genotypes are used in free range and organic production. Farmers around the world understand that in order to raise the birds with maximum efficiency, many conditions must be fulfilled: stress prevention, supply of good feed and water and sanitation. In providing these conditions, farmers ensure a basic level of animal welfare. However, there is a growing consensus of opinion that good productivity and health are not sufficient indicators of good welfare (**Jones, 1996**).

Status of broiler welfare in Slovakia

In terms of protection of farm animals, including broilers, are adopted legislative measures for the implementation of welfare in practical conditions. We are studying the implementation of broilers welfare in poultry farm. We observed and evaluated the behavioral and physiological needs of broilers in hall on deep litter. The straw was use for thickness 13 cm. The standard of measurement was the natural behavior of chickens. We studies the deviations from the natural behavior. We can conclude on the basis of the results that welfare principles should be applied in raising broilers in this poultry farm. The broilers fed the complete feed mixtures. Suitable feed materials used in their manufacture. The content of nutrients and metabolizable energy in feed mixtures starter, grower and finisher was balance in terms of their requirements (**Decree of Ministry of Agriculture of the Slovak Republic, January 31, 2002 No. 39/02/2002-100**).



Figure 1: Welfare of chickens Foto: Angelovič (2009)



Figure 2: Welfare of chickens in hall Foto: Angelovič (2009)

The broilers freely, without limitation, accessed to feed and water. Application of the second location with an automated system allows for the respect of natural, not impairing the requirements of the meat-type chickens. The economic evaluation of the effectiveness of fattening chickens according to the European Productivity Efficiency Factor 288, respectively 287 confirmed their good growth capacity, which at the age of 36 days occurred in 1853.0, respectively 1840.0 g body weight and viability, which reached 97.24, respectively 97.37%.

International trade in chicken meat

The international trade in broiler meat has grown very rapidly in recent years. Poultry is increasingly preferred in many regions as an affordable source of animal protein, which unlike pork or beef is accepted for consumption by most of the major religions in the world. Figure 3 provides an overview of the global poultry meat trade in 2004 (PVE, 2007). In 2004, 12% of the produced poultry meat reached the world market (Windhorst, 2006). The main exporters of poultry meat are the United States, Brazil and the EU. The main importing regions are Russia, North Africa and the Middle East, China and the EU. Broiler welfare is of more legislative concern in the EU than in many other regions. Some producer labels operate animal welfare standards above the regulatory minimum. Also producers in some developing countries achieve levels of animal welfare that exceed EU regulatory minimum levels to a different degree. Animal welfare concerns should not motivate categorical trade restrictions on imports of poultry products from developing countries into the EU. The European Commission, backed by a group of core member states in north-western Europe, has defined strong ambitions for improving animal welfare in the EU and its trading partners (European Commission, 2006b). Much of the global trade in poultry meat is explained by variations in consumer preferences across the globe. While consumers in the US and the EU largely favour breast cuts, consumers in Asia prefer the meat on

legs and wings. Producers export the cuts to markets where they get the best price (Dyck and Nelson, 2003). It is considered unlikely that raising the upgrade of legal EU animal welfare standards will have a large impact on the composition of global trade in poultry meat. The EU reached agreement with Brazil and Thailand on maximum import quotas. Brazil can compete with breast meat on the European market due to very low production costs. Thailand can compete with breast meat on the European market as a result of a preference for dark leg meat on the regional market. The production costs in the EU are expected to increase following the implementation of the EU Directive on broiler welfare. The implementation of the broiler Directive may therefore strengthen the call of EU producers for continued border protection to check the competitive pressure from foreign producers, raising the question whether EU animal welfare standards provide a basis for continued protection. There are at least two economic arguments to consider it inappropriate to apply border protection for broiler meat on the grounds of animal welfare requirements. Firstly, the difference in animal conditions is currently limited, although there are apparent limitations to a reliance on bird density. The density of broilers in the exporting countries is already at the EU target level. Secondly, the incremental costs of a further reduction in Brazil and Thailand are lower than in the EU due to lower costs for housing and labour. Producers in exporting countries are likely to respond to Bowles et al. (2005) regulatory demands in the EU for increased animal welfare if they were to be implemented. Meat exporting firms have demonstrated a willingness and capacity to respond. provide preliminary evidence of restructuring and certification within Argentinean and Thai broiler meat supply chains in response to altering buyer demands in the EU. Both observations raise questions whether continued border protection for EU poultry producers serves as an economically rational instrument to achieve an upgraded level of animal welfare in the consumption of broiler meat in the EU. Furthermore, these points demonstrate that, in principle, an upgrade of EU regulation requirements for animal welfare in imported broiler meat should not operate as a non tariff barrier to exporters, but rather as an opportunity to create additional value added. The next year is therefore expected to slow growth in production of broilers 1–2% in accordance with consumption. Trade balance EU-27 remains negative. The main export markets for EU-27 is Russia, Saudi Arabia and Ukraine. Brazil and Thailand are the largest importers of broiler meat to the EU-27 for them followed by Argentina and Chile. Producers in the EU to cope with high domestic production costs in comparison with competitors. Demand for chicken meat in 2009, restored to its original level and consumption will continue to grow. It will go up, retail price, which is linked with increased production costs (Agra Europe, 2008).

Production and sale of slaughter broilers in the Slovak Republic

The total average poultry number in the Slovak agriculture reached approximately 15,2 million pieces as per 30 June 2008. In comparison with the previous year it was decreased by 1.3%, it represented 192 thousand pieces. Tendency to

decrease the production of poultry for slaughter since 2006, continued in the first half of 2008. Evolution of sales of poultry to be slaughtered correspond with the development status of poultry, number to which the period fell below the previous year. The situation in the poultry affected not only the economic consequences accompanying the implementation of the requirements in the European Commission animal welfare (reducing the burden on square meter in fattening broilers, etc.), but a situation with expensive feed, and changes in ownership too. According to data of Statistical Office Slovak Republic to live June 30, 2008 sold 50.9 thousand tonnes of poultry to be slaughtered, representing 94.4% of the volume of slaughtered poultry sold in the same period last year (excluding the estimate for other breeders in the register of unincorporated farms), which decreased sales by 5.6%. Sale of trading and processing organizations consisted of total sales 92.0%, an annual decrease of 0.6 p. b. Other sales consisted of the total 1.9% (reduction of 0.7 percentage points) and 6.0% of exports (increase of 1.1 p. b). Average slaughter weight of broilers increased from 1.90 kg to June 30, 2007, and 1.96 kg to December 30, 2007 to 1.98 kg to June 30, 2008. In 2008 reduced the sale of broilers about 6.0% (about 3 030 t) (Jamborová, 2008).

CONCLUSION

For an adequate assessment of welfare a wide range of indicators must be used, although single indicators can show that welfare is poor. Animal welfare can be assessed in a scientific way and indicators of welfare include those of physiological states, behaviour and health. Estimates of welfare using mortality and morbidity figures have to be based on comparisons between production systems since reference values on acceptable levels are rarely available. Most of the welfare issues that relate specifically to commercial broiler production are a direct consequence of genetic selection for faster and more efficient production of chicken meat, and associated changes in biology and behaviour. There are also differences in biology and behaviour between male and female broilers, and between broilers and breeding birds, that have implications for welfare. A wide range of metabolic and behavioural traits in broilers has been changed by selection practices. Major concerns for animal welfare are the metabolic disorders resulting in leg problems, ascites and sudden death syndrome and other health problems. A European label, tax or tariff based on animal welfare performance, as all measures based on performance standards, is contentious under international trade law. Such a scheme is open to challenge under WTO rules if considered discriminatory against producers of livestock products that want to export to the EU. The likelihood that a measure is challenged depends on how difficult it is for exporters to meet the requirements and the expected effectiveness of the label or (border) tax in segmenting the meat market. Slovak republic is the member state of EU and follow the governed by the applicable EU legislation. Broiler welfare subject to standardization and chicken meat free goods.

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