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# CRITERIA-BASED EVALUATION OF SELECTED EUROPEAN ANIMAL WELFARE LABELS: INITIATIVES FROM THE POULTRY MEAT SECTOR

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**Abstract**

In recent years the issue of animal welfare in intensive livestock production systems has been subjected to increasing attention from media, politicians and the wider public. This increasing rejection of concerning meat production by western society has placed food manufactures along the meat supply chain in a difficult situation characterized by conflicting demands. On the one hand, the farming and food industries operate economically in a field where cost degression and growth are required in order to remain internationally competitive. Accordingly, in the past the focus of farms and firms has been primarily on the exploitation of economies of scale, whereas to a certain extent aspects of animal welfare have been neglected. On the other hand, consumer awareness of food products is constantly changing, and there has been a continuous trend towards the purchase and consumption of foods that have been produced in a more animal friendly way. But there is a paucity of clearly understandable information on animal welfare standards that would enable consumers to select products of animal origin on the basis of a conscious purchase decision. Besides an increase in legislative regulation, improved animal welfare standards are most frequently achieved through the establishment of so-called animal welfare labels to meet the expectations of society and to allow consumers to make informed purchasing decisions. However, so far, there has been no informed assessment of the various approaches to improve animal welfare. It is, therefore, the aim of this paper to provide an assessment of selected European animal welfare labels for poultry on the basis of a developed set of criteria and thereby to contribute to better informing consumers and to further improve existing approaches. The criteria-based evaluation shows, that there are significant differences between the labels investigated regarding the improvement of animal welfare standards. The results obtained are consequently of far-reaching importance for both consumers and enterprises that are considering entering the market segment for animal welfare products.

**Keywords**

Agricultural livestock production, Animal welfare, Certification system, Food industry, Food labelling, Poultry production

## 1. Introduction

The difficulties concerning animal welfare in intensive livestock production systems have gained increased attention in the recent past, in media and society as well as in political relevance (HEYDER and THEUVSEN, 2009). It is one of the topics in which the modern agriculture and food industry touches socially debated points of conflict (JANSEN and VELLEMA, 2004). Recent knowledge in animal health, biology, animal husbandry, and animal welfare ethics recognize ever greater the intrinsic worth of animals. As a result, a fundamental change in western societal values has taken place (BADERTSCHER FAWAZ, 1997). Western European consumers are increasingly averse to intensive livestock farming and are dissociating themselves from an anthropocentric view of issues concerning animal welfare (ALVENSLEBEN, 2000; VOERSTE, 2008). In addition, ethical and sustainable aspects of products and production processes have become even more important to consumers in recent years (JEKANOWSKI et al., 2000, AERTSENS et al., 2009; HUGHNER et al., 2007, FRANZ et al., 2010). The poultry sector in particular is currently attracting heavy criticism in the media and is therefore threatened with the loss of consumer acceptance. Various marketing surveys estimate a considerable sales potential for products that fulfil higher animal welfare standards, since 20 % to 30°% of consumers in Western European countries are in complete agreement, that the current standards of meat production are too low. Furthermore, consumer surveys also show that consumers are willing to pay about 10 % to 35% more for more animal -friendly products compared to standard products. To win this group of consumers for a market of meat products produced in an animal-friendly way, animal welfare labels constitute an appropriate option (DEIMEL et al., 2010; Franz, 2012; SCHULZE et al., 2008).

Nevertheless, with few exceptions, animal welfare labels have not attained any great importance in the European meat market. A corresponding selection of products geared to animal welfare can only be found in a few countries (e.g. Switzerland). Currently, the market segment for these products in Germany is marginal (mostly < 1 %) (DEIMEL et al., 2010; FRANZ, 2012). Explanations of their limited success in the market are usually sought on the demand side. A common argument is that consumers are confronted with an ”information overload” stemming from the numerous label initiatives (FRANZ, 2012). Additionally, it has been noted that the cost effects of improved animal welfare standards lead to a significant price difference in comparison with standard goods (THEUVSEN, 2011). Consumers´ insufficient awareness about the benefits of animal welfare labels might also be a cause (BRACKE, 2007). As is known through the sales of organic products, consumers’ willingness to pay a higher price is decidedly dependent upon certain marketing measures. For meat

produced from more animal friendly husbandry to obtain a successful point-of-sale placement, it must be correspondingly positioned in the marketplace (DEIMEL et al., 2010; SCHULZE et al., 2008). Meat from particularly species-appropriate production could have a suggested retail price somewhere between that of standard and that of organic products because not all animal welfare measures require additional costs. From another perspective, not all requirements of organic production are relevant to animal welfare, so there would be a sizeable margin for savings (DEIMEL et al., 2010). A wide ranging animal welfare market segment with a noteworthy share of the market would bring advantages due to its large scale and good utilization of by-products and could justify setting product prices just moderately above the prices of standard products (ISERMEYER and SCHRADER, 2003). This would also be more appealing to customers who find the price of organic products prohibitively high (DEIMEL et al., 2010).

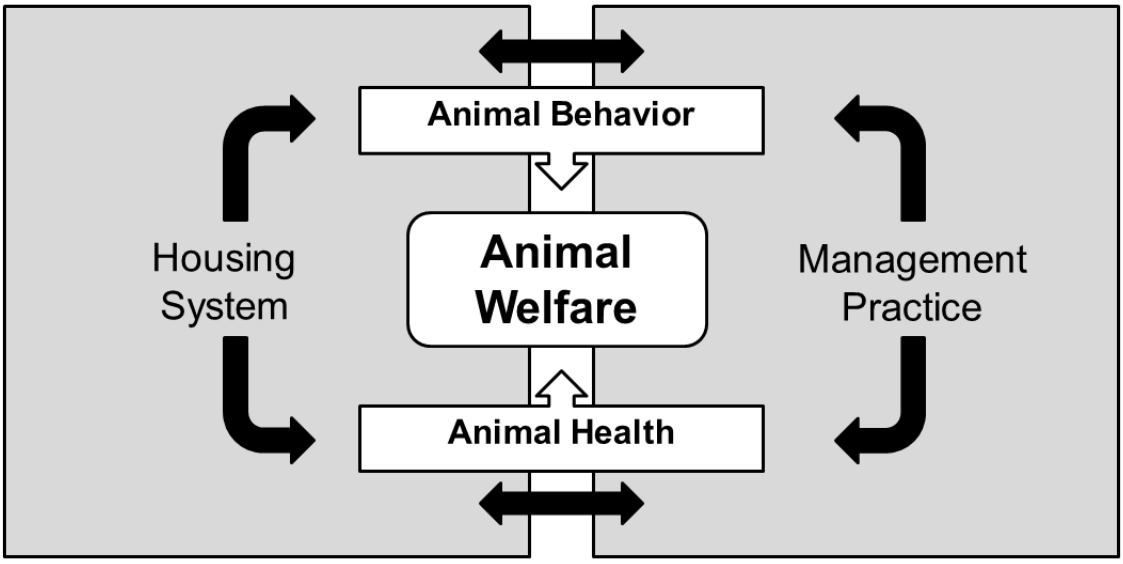
Animal welfare labels represent an option to establish a market for products which meet higher animal welfare standards. Labels can serve consumers as quality signals and provide guidance on purchase and thus have the potential to mobilize the required consumers' willingness to pay more (FRANZ, 2012). It is important that the labels brought to the market cater to consumers´ requirements concerning the improvement of animal welfare standards. So far, the extent to which the labels investigated contribute to the improvement of standards in animal husbandry has not been analyzed in-depth. The present contribution is intended to help close this research gap. For this purpose a catalog of criteria and an evaluation scheme have been developed enable the comparison and evaluation of the selected certification systems with respect to their animal welfare standards. An appropriate assessment of the selected European animal welfare labels is intended to ensure improved orientation and simplified decision-making on the part of consumers when purchasing food of animal origin. Furthermore, the improvement of the process quality of food of animal origin will be carried forward through the present study by benchmarking existing approaches against each other.

## 2. State of Research and our Approach

In order to inform consumers as well as possible about livestock production standards and to ensure an appropriate range of meat products from animal friendly production in the market, criteria have to be chosen that allow an objective and clear evaluation of the conditions of animal husbandry. In scientific research concerning the assessment of the well- being of farm animals, a comprehensive, integrative approach has emerged, based on four priorities: housing system, animal behavior, animal health and management practice. Housing system

and management practice are indirect characteristics and can be influenced by the producer. They also exert a major influence on animal behavior and animal health. Animal behavior and animal health directly reflect the welfare of farm animals (direct characteristics) (DEIMEL et al., 2010).

**Illustration 1: Categories for evaluation of animal welfare**




Source: authors´illustration based on DEIMEL et al., 2010

Modern poultry farming faces problems with regard to all four determinants of animal welfare. The fundamental animal welfare problems facing the housing system of poultry farming are currently the high stocking density, space requirements, the inadequate design of housing areas (interior design, perches, ventilation technology, level of illumination) as well as problems concerning appropriate bedding materials.

Deficiencies in the husbandry system have a direct impact on animal behavior. Overall common housing systems vary significantly in terms of opportunities for animals to practice their innate behaviors (foraging, dust-bathing, rearing and nesting). Limitation or even elimination of natural behaviors with high priority for the animals can cause frustration, withdrawal symptoms and even injury and strongly impacts their well-being. This often leads to aggressive behavior towards conspecifics (e.g. feather picking, cannibalism). Due to the shortcomings of the housing systems and limitations on natural behaviors, even animal health may suffer. Food pad lesions and bone fractures occur regularly in poultry production. In the field of management, daily observation, regular inspection of stocks, proper handling of animals, strict maintenance of hygiene and disease prevention and short transportation times are considered to be especially decisive for maintaining the well-being of poultry. Common

handling routines, such as clipping beaks, cause pain to the animals and are generally considered very critical management practices (DEIMEL et al., 2010; BMELV, 2011).

Labels relating to animal welfare serve as quality signals to inform consumers about the measure of an important process quality, i.e. the humane treatment of animals (HEYDER and THEUVSEN, 2009). The term label stands for all verbal or pictorial marks, placed on a product or package in order to indicate product- or process-related properties through key information (LABEL-ONLINE, 2013). It is, therefore, a frequently chosen instrument of business-to-business- as well as business-to-consumer-marketing marketing and offers companies the possibility of market segmentation (FRANZ, 2012). By attaching a label to food products, trust attributes such as animal welfare standards can be transformed into search attributes, thus, allowing consumers to make more informed purchasing decisions. However, a label itself is a trust good which can gain additional trust by undergoing external examination by an independent certification agency (JAHN et al., 2005). Labels that signal trust attributes for foodstuffs are therefore often granted on the basis of certification systems and independent third-party audits by accredited inspection bodies (THEUVSEN, 2011).

A certification system can consider animal welfare in various ways:

- It focuses exclusively on aspects influencing animal welfare. This is often the case when labels originate from animal protection societies or other nongovernmental organizations.
- In addition to animal welfare other aspects are taken into consideration, such as promotion of small-scale farming and, as a result, limited growth in size of the farms or traditional production methods.
- Different aspects of the label are prime considerations, for instance organoleptic quality of meat products, but these aspects have positive side effects in terms of animal welfare. This applies, for example, to some certification systems based on EU regulations for qualified indications of geographical origin (PDO and PGI according to regulation (EU) No 1151/2012), which require less intensive production methods. One example is the French “Label Rouge”, which prescribes free-range husbandry for quality reasons (DEIMEL et al., 2010; EU, 2006; EU, 2012).

Due to current public concerns, several labels relating to animal welfare have been developed in recent years in Europe. The “Freedom Food”-label was established in 1994 in the UK on the initiative of the Royal “Society for Prevention of Cruelty to Animals“ (RSPCA). Since then it has identified products that are certified according to the RSPCA Farm Animal Welfare Standards. These standards were developed with the help of scientists, veterinarians and industry representatives. In addition, Freedom Food collaborates with stakeholders at

each stage of the value chain of meat production. Guidelines for beef cattle, dairy cows, meat chickens, laying hens, turkeys, ducks, pigs, sheep and salmon have been developed. In 2011, 40 million meat chickens were reared under the requirements of Freedom Food. These represent about 5% of the 860 million chickens reared in the UK each year (FREEDOM-FOOD, 2014a; FREEDOM-FOOD 2014b; RSCPA, 2014; DEIMEL et al., 2010).

In 2007 the Swiss retail company Coop founded the label "Naturafarm". The origins of this label go back to the 1980s when it was called "Natura Plan". The label distributes meat and eggs from animal-friendly, conventional free range production systems. The criteria of the various animal welfare programs have been developed in collaboration with the Swiss Animal Protection Society. These guidelines exist for the production of beef, veal, pork, chicken meat and eggs. According to Coop, one third of the total meat sales in Switzerland are certified products from Coop Naturafarm (DEIMEL et al., 2010; COOP NATURAFARM 2014).

In 2007 the Dutch Animal Protection Society De Dierenbescherming established the label "Beter Leven". It is a three-step label. The one- and two-star labels (basic grade and premium grade) is granted to conventional farms that comply with correspondingly higher animal welfare standards. Three stars are only given to products from organic farming. Meanwhile, there are guidelines for the production of meat poultry, pigs, cattle and the production of eggs. In total 13 out of the 16 largest Dutch food retail companies offer meat which is certified with the Beter Leven label (BETER LEVEN, 2012b; DEIMEL et al., 2010).

The "Label Rouge"-label has been in existence for approximately 50 years. It was not established with the aim of ensuring increased animal welfare standards, but to guarantee high meat quality. This results in higher demands on the production process, having a positive effect on animal welfare, too. Therefore, it also indicates the humane treatment and long rearing period of poultry. It is an official seal of approval, which is awarded by the French Ministry of Agriculture. In 2012, approximately 88.6 million Label Rouge chickens were produced. In 2012, 57% of the total production of whole chicken in France received the Label Rouge. Moreover, at least 11% of the total production of cut meat received the Label Rouge (LABEL ROUGE, 2014).

In 2009 the German Animal Protection Society began collaborating with representatives from science, agriculture, processing and retail to develop animal welfare label "Für Mehr Tierschutz"; in 2013 it was introduced to the market for pigs and broilers. It includes a basic level (Tierschutzbund – basic grade) and a premium level (Tierschutzbund – premium grade); each level has different requirements for animal husbandry, animal transport and slaughter (DEUTSCHER TIERSCHUTZBUND, 2013b).

As mentioned in the introduction, the criteria of the animal welfare labels under study have already been the subject of several descriptive studies (DEIMEL et al., 2010; FRANZ, 2012). But so far, no study has performed a comparative evaluation of the labels or in-depth analyses of the extent to which they contribute to the improvement of standards in animal husbandry. Against this background, the present study makes a comparative analysis and subsequent evaluation of the labels ”Freedom Food” (Great Britain), ”Coop Naturafarm” (Switzerland), “Beter Leven – basic grade” and ”Beter Leven – premium grade” (Netherlands), “Label Rouge” (France) and “Tierschutzbund – basic grade” and “Tierschutzbund – premium grade” (Germany), based on a relevant set of evaluation criteria. This study focuses on poultry production. In this way, it contributes to the further development of existing approaches and therefore to the improvement of consumer orientation and process quality in the meat industry. Furthermore, consumers can refer to this objective evaluation of the selected labels as decision support when purchasing products of animal origin. Finally, our evaluation provides a benchmarking of competing label initiatives, which will help standard setters to improve their standards.

## 3. Materials and Methods

The development of the set of criteria was based on a comprehensive analysis of the current literature on animal welfare in animal husbandry and animal welfare labels. The findings of this research led to the selection of the five above described labeling initiatives. The detailed requirements that they place on the keeping of poultry were either downloaded from the homepages of the labels or were provided by the standard setters at our written request. In order to evaluate the standards of each label as objectively as possible, the European Union legislation was selected as the basis describing minimum standards for poultry production in Europe. In particular, the council directives 98/58/EC concerning the protection of animals kept for farming purpose and 2007/43/EC laying down minimum rules for the protection of chickens kept for meat production and council regulations (EC) No 1/2005 on the protection of animals during transport and (EC) No 1099/2009 on the protection of animals at the time of killing were suitable as the basis for defining minimum animal welfare standards in Europe (EU 1998; EU, 2005; EU, 2007; EU, 2009).

In the process of developing an evaluation system based on the EU directives and regulations, all criteria related to animal welfare were selected. The corresponding standards of the labels under review were then compared with the EU requirements. If the labels defined their own

criteria, which were not included in the EU regulations, but appeared to significantly contribute to the improvement of animal welfare, these criteria were also included in the catalog.

A total of 40 criteria for the assessment of animal welfare standards were chosen. To present the criteria clearly, different production stages were distinguished. In the production stage "general requirements" (general) account for 14 of the criteria, the production section "fattening period" (fattening) includes 9 criteria and the production stage "transport and slaughter" (slaughter) 6 criteria. In addition all 40 criteria were assigned to either the categories "housing system" (housing) and management practice (management). The housing category thus contained 16 criteria, whereas the management category had 24.

The evaluation of the animal welfare label criteria considered was based on a three - point scale. Standards, did not improve upon the EU standard, were rated with zero points. A slight improvement of the EU legislation was evaluated with one point, a significant improvement with two points. To achieve an overall assessment of the respective labels, all points achieved were added to a total score. A total score of zero therefore indicated that the corresponding label hasn't revealed an improvement over the EU standard in any criterion. In contrast, a total score of 80 points indicate that a significant improvement was required for each criterion when compared with the EU standards. The labels were rated overall and separately for the categories housing and management. In order to compare the animal welfare labels in regard to the individual stages of production, the subtotal of the evaluation for housing and management criteria for the various stages was noted. For all labels points were determined and the percentages of maximum possible points were calculated in order to improve comparability.

## 4. Results

To ensure a clear representation of the results, the set of criteria is presented and the labels are evaluated based on their requirements in the various production stages general, fattening and slaughter (Tables 1 to 3).

**Table 1: Criteria of the production stage "general" and evaluation of the labels**

| Label / Criteria<br>H = Housing<br>M = Management | COOP Naturafarm | RSPCA Freedom Food | Label Rouge | Beter Leven Basic Grade | Beter Leven Premium Grade | Tierschutzbund Basic Grade | Tierschutzbund Premium Grade |
|---|---|---|---|---|---|---|---|
| Restriction of number of Fattening Places (M) | 0 | 1 | 2 | 0 | 0 | 1 | 2 |
| Staff Qualifications (M) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Veterinary Care (M) | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| Feed Requirements (H) | 2 | 0 | 1 | 1 | 1 | 0 | 1 |
| Water Requirements (H) | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Breeding Requirements (M) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Stable Climate (H) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Noise Restrictions (H) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ventilation Equipment (H) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lighting (H) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Animal Control & Documentation (M) | 0 | 2 | 0 | 0 | 0 | 1 | 1 |
| Gait Score (M) | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Use of Antibiotics & Documentation (M) | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Control Audits (M) | 1 | 2 | 0 | 1 | 1 | 0 | 0 |

Source: authors‘ illustration based on BETER LEVEN, 2012a; BETER LEVEN, 2012b; COOP NATURAFARM, 2011; DEUTSCHER TIERSCHUTZBUND, 2013; LABEL ROUGE, 2012; EU, 1998; EU, 2005; EU, 2007; EU, 2009; RSPCA, 2013; authors‘ evaluation

**Table 2: Criteria of the production stage “fattening” and evaluation of the labels**

| Label / Criteria<br>H = Housing<br>M = Management | COOP Naturafarm | RSPCA Freedom Food | Label Rouge | Beter Leven Basic Grade | Beter Leven Premium Grade | Tierschutzbund Basic Grade | Tierschutzbund Premium Grade |
|---|---|---|---|---|---|---|---|
| Feeding Devices (H) | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Drinking Devices (H) | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Daily weight Gains (M) | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Length of Fattening Period | 1 | 0 | 2 | 1 | 1 | 0 | 1 |
| Group Size (M) | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| Stocking Density (H) | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Bedding Requirements(H) | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| Manipulable Material (H) | 1 | 1 | 0 | 2 | 2 | 1 | 2 |
| Presence of Perches (H) | 2 | 1 | 0 | 0 | 0 | 1 | 1 |
| Winter garden (H) | 2 | 2 | 0 | 2 | 0 | 2 | 2 |
| Access to Free range (H) | 2 | 0 | 2 | 0 | 2 | 0 | 2 |
| Waiving of Surgical Interventions (M) | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mortality Rate (M) | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

Source: authors' illustration based on BETER LEVEN, 2012a; BETER LEVEN, 2012b; COOP NATURAFARM, 2011; DEUTSCHER TIERSCHUTZBUND, 2013; LABEL ROUGE, 2012; EU, 1998; EU, 2005; EU, 2007; EU, 2009; RSPCA, 2013; authors' evaluation

**Table 3: Criteria of the production stage "slaughter" and evaluation of the labels**

| Label / Criteria<br>H = Housing<br>M = Management | COOP Naturafarm | RSPCA Freedom Food | Label Rouge | Beter Leven Basic Grade | Beter Leven Premium Grade | Tierschutzbund Basic Grade | Tierschutzbund Premium Grade |
|---|---|---|---|---|---|---|---|
| Thinning (M) | 0 | 1 | 0 | 0 | 0 | 2 | 2 |
| Catching and Loading (M) | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| Transport Time (M) | 0 | 1 | 2 | 2 | 2 | 2 | 2 |
| Transport Conditions (H) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Charge Density (H) | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Waiting Period (M) | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Stunning and Killing (M) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transport Losses (M) | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| Injured Animals (M) | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Animals unfit for Human Consumption (M) | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Breast Blisters (M) | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| Hock Burn (M) | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| Foot Pad Burn (M) | 0 | 1 | 0 | 0 | 0 | 1 | 1 |

Source: authors' illustration based on BETER LEVEN, 2012a; BETER LEVEN, 2012b; COOP NATURAFARM, 2011; DEUTSCHER TIERSCHUTZBUND, 2013; LABEL ROUGE, 2012; EU, 1998; EU, 2005; EU, 2007; EU, 2009; RSPCA, 2013; authors' evaluation

Based on the scoring in Tables 1 to 3, the total number of points accrued as well as the percentages of maximum possible points are given in Table 4. In addition, results are presented separately for the categories of management and housing.

**Table 4: Comprehensive Evaluation of the Labels**

| Category / Label | Total | | Management | | Housing | |
|---|---|---|---|---|---|---|
| | Points | % | Points | % | Points | % |
| **COOP Naturafarm** | 22 | 28% | 8 | 17% | 14 | 44% |
| **RSPCA Freedom Food** | 27 | 34% | 15 | 31% | 12 | 38% |
| **Label Rouge** | 17 | 21% | 10 | 21% | 7 | 22% |
| **Beter Leven Basic Grade** | 17 | 21% | 8 | 17% | 9 | 28% |
| **Beter Leven Premium Grade** | 18 | 23% | 8 | 17% | 10 | 31% |
| **Tierschutzbund Basic Grade** | 28 | 35% | 20 | 42% | 8 | 25% |
| **Tierschutzbund Premium Grade** | 36 | 45% | 23 | 48% | 13 | 41% |

Source: authors' calculation

The results support a clear ranking of the investigated labels, but, in some parts of the assessment, the degree of separation is marginal. The German Animal Protection Society labels are in the lead with 45 % of all possible points for the "Premium Grade" and 35 % for the "Basic Grade". The third place goes to the British Label "Freedom Food" with 34 % of all possible points. With 28 % of the points, the Swiss Naturafarm Label places fourth. At the bottom of the ranking are the Dutch Animal Protection Society´s "Premium Grade" (23 %) and "Basic Grade" (21 %). The same ranking was attained by the French "Label Rouge" (21 %). A subdivision of the criteria in the categories of management and housing leads in parts to a significant change in the ranking of the labels. For the management category, the results induce a ranking quite similar to the overall assessment. Again, the German Animal Protection Society labels achieve the highest scores. The "Premium Grade" reaches 48 % and the "Basic Grade" 42 %. They are followed by "Freedom Food" (32 %) and "Label Rouge" (21 %). The remaining labels "Naturafarm", "Beter Leven Premium Grade" and "Beter Leven Basic Grade" place last with 17 % of the maximum score. The low rating of these three labels can be explained by the fact that only six of the 24 management criteria were represented by these standards. Compared to this ranking, evaluating the housing category yields significant differences. In this area, the Swiss Naturafarm label places first, with 44 % of all possible points. Second comes the German Animal Protection Society´s Premium Grade with 41 %, followed by Freedom Food with 38 %. The fourth and the fifth places are taken by "Beter Leven Premium Grade" (31 %) and "Beter Leven Basic Grade" (28 %). At the bottom of the ranking are the German Animal Protection Society´s Basic Grade Label (25 %) and "Label Rouge" (22 %).

The following Table 5 shows the evaluation of the labels in the various stages of production.

**Table 5: Evaluation of the labels in the various Stages of production**

| Production Stage / Label | General | | Fattening | | Slaughter | |
|---|---|---|---|---|---|---|
| | Points | % | Points | % | Points | % |
| **COOP Naturafarm** | 7 | 25% | 14 | 54% | 1 | 4% |
| **RSPCA Freedom Food** | 11 | 39% | 8 | 31% | 8 | 31% |
| **Label Rouge** | 7 | 25% | 7 | 27% | 3 | 12% |
| **Beter Leven Basic Grade** | 7 | 25% | 7 | 27% | 3 | 12% |
| **Beter Leven Premium Grade** | 7 | 25% | 8 | 31% | 3 | 12% |
| **Tierschutzbund Basic Grade** | 9 | 32% | 8 | 31% | 11 | 42% |
| **Tierschutzbund Premium Grade** | 11 | 39% | 14 | 54% | 11 | 42% |

Source: authors´ calculation

With reference to the "general requirements", no clear ranking of the labels investigated can be seen. The "Freedom Food"-label and the German Animal Protection Society´s Premium Grade label garner the most points. In third place is the German Animal Protection Society´s basic Grade label with 32 % of all maximum possible points. All the remaining labels ("Naturafarm, "Label Rouge", "Beter Leven - Basic Grade", "Beter Leven - Premium Grade") are in fourth place with 25 %. In the production stage "fattening period" the "Naturafarm" label and the "German Animal Protection society's Premium Grade" share first place, both receiving 54 % of the maximum points. The third place with 31 % of the maximum points is shared by three labels "Beter Leven - Premium Grade", "German Animal Protection society's Basic Grade" and "Freedom Food". The last place is shared by two labels, "Label Rouge" and "Beter Leven - Basic Grade", both attaining 27 %.

In the production stage "slaughter" the German Animal Protection Society labels win the evaluation with 42 % of the possible points. In third place is British "Freedom Food" label, scoring 31 %. Fourth place is shared by "Label Rouge" and the Dutch Animal Protection Society labels (12 %). At the bottom of the ranking is the Swiss label "Naturafarm", with only 4 % of the possible points, since there is only for the criterion "catching and loading" a standard defined that is slightly above the corresponding EU standard.

## 5. Discussion and Further Research

These study shows that the labeling initiatives investigated have established improvements above the legally defined minimum animal welfare standards of the EU in the categories housing system and management practice for the various production stages. They can, therefore, be seen as a serious response to the rising concerns of consumers with respect to intensive livestock production systems. However, upon research, each label currently still has weaknesses in individual areas which will need to be addressed in the future. For example, the Swiss "Naturafarm" label, which received a highly positive evaluation in the area of "housing system", still has problems in the area of management practice. A differentiated picture emerges when looking at the individual stages of production. Here, the various labels investigated have set very different priorities in their concepts. "Naturafarm" achieved a high rating in the production period fattening, while in the production stage "general requirements" and "slaughter" only marginal improvements in terms of animal welfare could be detected. Especially in the period of transport and slaughter, "Naturafarm" should strive for considerable improvements in order to offer a noteworthy contribution to higher animal welfare standards. The most notable improvements in this production step were seen in the German Animal Protection Society´s Premium Grade– they lead as a pioneer in this area.

The differences between the Basic Grade and the Premium Grade of the German Protection Society became clearly visible in the evaluation. This is due mainly to the fact that there are broad differences in the category of housing system. Chickens reared in accordance with the Premium Grade have access to open air runs and more diverse manipulable material and enjoy a reduced stocking density. For the Premium Grade of the Dutch „Beter Leven" label, this determination cannot be seen clearly. In the overall assessment, the Dutch Premium Grade received only one point more than the basic grade. Indeed, the chicken reared for the premium grade have access to open air runs and the stocking density is lower, but unlike the chickens reared for the basic grade, they do not have access to a cold scratching area. Considering that the cold scratching area has to be opened from the seventh day of life and the open air runs are not opened until the 28$^{th}$ day of life, Beter Leven should think about establishing a cold scratching area for both grades. This might be an appropriate opportunity to ensure even greater benefits with respect to animal welfare and to provide an objective justification for the higher prices in the food retail for products labeled with the Beter Leven Premium Grade.

Since the basic grades of the labels claim only moderate additional requirements concerning the housing system, limited additional costs arise for the producers. Therefore, the meat can be offered at a comparatively low price gap to standard products in the market. For example,

the German Animal Protection Society Basic Grade can be acquired without costly modifications to conventional housing. The basic grades of the labels,therefore, have an important function in the market, as they provide an attractive opportunity to both producers and consumers to enter the animal welfare segment. The drawback of the extensive market penetration is, in contrast to the premium grade, the limited improvement concerning animal welfare standards. The differentiation into "gold standard" and "mass-market" strategies generally observed in the label market can, therefore, also be observed for the animal welfare label sector (DEIMEL et al., 2010; CCIF, 2002).

The German label "Für Mehr Tierschutz" gets the highest overall rating in this study. However, the current market share of this label can be described as marginal. The actual impact on the improvement of animal welfare is therefore low, since only a few animals have benefited from these additional standards for livestock farming so far. However, the label has been on the market for only a comparatively short period of time. It remains to be seen whether or not it will able to establish a successful position in the market in the long run. According to insiders in the German meat market, preliminary market information provides a mixed picture concerning market penetration.

The French "Label Rouge" ranks in the lower middle of our evaluation. This is due mainly to the fact that the label is not an animal welfare label in the classic sense. It was established with the primary goal of providing outstanding quality; animal welfare only occurred as a positive side effect. The catalog of criteria is therefore not specially adapted to concerns of animal welfare. This could be a future direction for the further development of Label Rouge if animal welfare issues become more relevant in its French home market.

The labels investigated have been competing in the market for varying periods of time. Therefore, very different amounts of information about the individual labeling initiatives and their market success are available at the present moment. Nevertheless, a thorough economic assessment of the concepts under study taking into account additional costs along the supply chains as well as price premiums in the market remains to be made. At the moment, economic assessments are difficult since data on market penetration and the additional costs that arise at all steps of the value chain and for consumers are frequently often unavailable. Data on the number of agricultural holdings participating in each labeling initiative and information about the number of slaughtered animals per year would also be important in order to gain an impression of the relevance of the examined labels in the market and finally to assess the improvement which the individual labels contribute to animal welfare. At the same time, information on participating farms and the characteristics of those farms is also scarce.

The evaluation of animal welfare presented here was based on the indirect characteristics of animal welfare - housing system and management practice. This approach is often seen critically. Instead, the literature calls for the evaluation of animal welfare by using direct indicators of animal health and animal behavior. The assessment of animal welfare based on direct characteristics has already been the subject of major European research projects. Preliminary criteria for auditing health and behavioral issues were developed under the EU-financed Welfare Quality program (Welfare Quality Approach) (KEELING et al., 2013). However, this direct measurement, in particular as it regards the characteristic of animal behavior, is still problematic, and this approach is not practicable at the moment (ELLENDORF, 2002; BLOKHUIS et al., 2013). Future research should address the question of which criteria could allow a direct measurement of animal health and particularly of animal behavior.

Currently, in research, the weighting of the criteria for the evaluation of animal welfare is under consideration, since not all criteria have an equally strong impact on the well-being of animals (BRACKE et al., 1999; SPOOLDER et al., 2003). At the present time, there are still not enough scientifically founded results to make a reliable determination on the importance of individual criteria. Therefore, in this study, the criteria were not weighted. On the basis of appropriate knowledge, further studies should take the weighting of criteria into account, in order to include the influence of different measures on animal welfare in greater detail.

It was not possible to include every central animal welfare issue mentioned in the theoretical part of this paper in the study criteria. This is because there is currently no legal basis for these criteria at a European level. Even the labeling initiatives have not set standards for all the animal welfare problems discussed (DEIMEL et al., 2010; BMELV 2011). Further research is needed in order to close the existing gaps in legislation and in certification standards. Also, there are criteria that are indeed controlled by the EU, but for which none of the labels examined has set additional standards (e.g. stable climate, noise restriction). Future studies should, therefore, be dedicated to the question of whether these criteria have already reached an optimum, so the improvement of the EU standards does not seem necessary to the labeling initiatives, or whether the establishment of higher standards for these criteria has not yet been pursued due to a lack of information from research or difficulties in operationalization.

The labels under study in the present contribution offer certified meat producers an opportunity to differentiate their products in the market and, thereby, be able to gain competitive advantages and avoid competition exclusively on the basis of low costs. The labels also provide farmers with an alternative to the “grow or exit” conundrum and offer low-cost competition and retailers the opportunity to add premium products to their

assortment. Therefore, there are economic incentives for farmers, processors and retailers to thoroughly investigate the market potential of animal welfare products.

In addition, the labels can increase the transparency of meat production for the consumer and, furthermore, counteract the bad reputation of the meat industry. For the consumer, animal welfare labels can serve as quality signals and provide guidance when purchasing food products of animal origin. The criteria-based evaluation of the various animal welfare labels is a response to the growing concerns of society regarding animal welfare and the growing number of labels issued by various standard setters. The labels provide a good opportunity to comply with the requirements of society with respect to more animal friendly meat production systems and, at the same time, offer a solution to the often lamented challenge to increase animal welfare standards without sacrificing the international competitiveness of farmers and processors.

## References

AERTSENS, J.; VERBEKE, W.; MONDELAERS, K.; VAN HUYLENBROEK, G. (2009): Personal determinants of organic food consumption: A review. In: British Food Journal 111 (10): 1140-1167.

ALVENSLEBEN, R V. (2000): Welche Produkte will der Markt? In: Agrarpolitisches Symposium der Akademie für Politik und Zeitgeschehen 1.-3.11.2000, Wildbad-Kreuth.

BADERTSCHER FAWAZ, R. (1997): Tierwohl: Verantwortung der Konsumentinnen und Konsumenten oder Aufgabe des Staates? Ph. D. Thesis, University of Zuerich.

BETER LEVEN (2012a): Dierenwelzijnsnormen voor vleeskuikens met 1 ster: scharrelkip binnengehouden.URL: http://beterleven.dierenbescherming.nl/fileupload/ Criteria/FD _Criteria_vleeskuikens_1_ster_20120611.pdf. Download: 26.03.2014.

BETER LEVEN (2012b): Dierenwelzijnsnormen voor vleeskuikens met 2 sterren: scharrelkip met uitloop URL: http://beterleven.dierenbescherming.nl/fileupload/ Criteria/FD_Criteria_vleeskuikens_2_sterren_20120611.pdf. Download: 26.03.2014.

BLOKHUIS, H., JONES, B., MIELE, M. und VEISSIER, I. (2013): Assessing and improving farm animal welfare: The way forward. In: H. Blokhuis, M. Miele, I. Veissier, B. Jones (Eds.).Improving farm animal welfare. Science and society working together: The Welfare Quality Approach: 215-221.

BMELV (Wissenschaftliche Beiräte für Verbraucher- und Ernährungspolitik sowie Agrarpolitik) (2011): Gemeinsame Stellungnahme: Politikstrategie Food Labelling. In: Berichte über Landwirtschaft , 90 (1): 35-38.

BRACKE, M.B.M., SPRUIJT, B.M. and METZ, J.H.M. (1999): Overall animal welfare assessment reviewed. Part 3: Welfare assessment based on needs and supported by expert opinion. In: Netherlands Journal of Agricultural Science 47 (3-4): 307-322.

BRACKE, M.B.M. (2007): Animal-based Parameters are no Panacea for On-farm Monitoring of Animal Welfare. In: Animal Welfare 16 (2): 229-231.

CCIF – CONSERVATION AND COMMUNITY INVESTMENT FORUM (2002): Analysis of the Status of Current Certification Schemes in Promoting Conservation. San Francisco, CA.

COOP NATURAFARM (2011): Richtlinie Coop Naturafarm Poulet. Anforderungen an die Freilandhaltung von Masthühnern vom 1. März 2011. URL: http://www.coop.ch/pb/site/common/get/documents/system/elements/naturafarm/_dl/rl_ cnf_poulet_d.pdf. Download: 26.03.2014.

COOP NATURAFARM (2014): Naturafarm. In: http://www.coop.ch/pb/site/viva/node/68813477/Lde /index.html. 2014. Download: 14.02.2014.

DEIMEL, I., FRANZ, A., FRENTRUP, M., VON MEYER, M., SPILLER, A. and THEUVSEN, L. (2010): Perspektiven für ein Europäisches Tierschutzlabel. In: http://download.ble.de/08HS010.pdf. Download: 30.01.2014.

DEUTSCHER TIERSCHUTZBUND (2013): Kriterienkatalog für eine tiergerechte Haltung und Behandlung von Masthühnern im Rahmen des Tierschutzlabels „Für Mehr Tierschutz“ URL: http://www.tierschutzlabel.info/fileadmin/user_upload/ Dokumente/ Kriterienkatalog_Masthuehner.pdf. Download: 26.03.2014.

DEUTSCHER TIERSCHUTZBUND (2013b): Tierschutzlabel. In: http://www.tierschutzlabel.info/tierschutzlabel. Download: 30.01.2014.

ELLENDORF, F. (2002): Interdisziplinäre Bewertung unterschiedlich-intensiver Produktionssysteme von Masthähnchen unter Aspekten von Tierschutz, Produktqualität, Umwelt, Wirtschaftlichkeit. Bundesforschungsanstalt für Landwirtschaft (FAL), Kurzbericht einer Feldstudie. In: http://edok.ahb.niedersachsen.de/07/351392033.pdf. Download: 12.02.2014.

EU (1998): Richtlinie 98/58/EG des Rates über den Schutz landwirtschaftlicher Nutztiere. In: http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1998:221:0023:0027:DE: PDF. Download: 15.02.2014.

EU (2005): COUNCIL REGULATION (EC) No 1/2005 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97. URL: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005R0001&rid=2. Download: 26.03.2014.

EU (2006): Verordnung (EG) Nr. 1898/2006 Der Kommission mit Durchführungsbestimmungen zur Verordnung (EG) Nr. 510/2006 des Rates zum Schutz von geografischen Angaben und Ursprungsbezeichnungen für Agrarerzeugnisse und Lebensmittel. In: http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:369:0001:0001:DE: PDF. Download: 26.02.2014.

EU (2007): COUNCIL DIRECTIVE 2007/43/EC laying down minimum rules for the protection of chickens kept for meat production In: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007L0043&rid=3. Download: 26.03.2014.

EU (2009a): COUNCIL DIRECTIVE 98/58/EC concerning the protection of animals kept for farming purposes In: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31998L0058&rid=3. Download: 26.03.2014.

EU (2009b): COUNCIL REGULATION (EC) No 1099/2009 on the protection of animals at the time of killing. In: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R1099&rid=2. Download 26.03.2014.

EU (2012): Verordnung Nr. 115/2012 des europäischen Parlaments und des Rates vom 21. November 2012 über Qualitätsregelungen für Agrarerzeugnisse und Lebensmittel. In: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:343:0001:0029:de:PDF. Download: 27.02.2014.

FRANZ, A. (2012): Perspektiven des Food Labelling. Ph. D. Thesis, University of Goettingen.

FRANZ, A. ; VON MEYER, M. ; SPILLER, A. (2010): Prospects for a European animal welfare label from the German perspective: Supply chain barriers. In: International Journal on Food System Dynamics 1 (4): 318-329.

FREEDOM-FOOD (2014a): History. In: http://www.freedomfood.co.uk/aboutus/history. Download: 12.02.2014.

FREEDOM-FOOD (2014b): Facts and figures. In: http://www.freedomfood.co.uk/aboutus/facts-and-figures. Download: 24.03.2014.

HEYDER, M. and THEUVSEN, L. (2009): Corporate Social Responsibility in Agribusiness. In: J. Böhm, F. Albersmeier and A. Spiller (Ed.): Die Ernährungswirtschaft im Scheinwerferlicht der Öffentlichkeit. Eul: Lohmar and Köln: 47-73.

HUGHNER, R.S. ; MCDONALDS, P. ; PROTHERO, A. ; SHULTZ, C.J. ; STANTON, J. (2007): Who are organic food consumers? A compilation and review of why people purchase organic food. In: Journal of Consumer Behaviour 6 (2-3): 94-110.

ISERMEYER, F. and SCHRADER, L. (2003): Politik: Wer bezahlt Tierschutz? In: Landbauforschung Völkenrode, Special Issue, Vol. 262: 151-174.

JAHN, G., SCHRAMM, M. and SPILLER, A. (2005): The Reliability of Certification: Quality Labels as a Consumer Policy Tool. In: Journal of Consumer Policy 28 (1): 53-73.

JANSEN, K. and VELLEMA, S. (2004). Agribusiness and Society: Corporate Responses to Environmentalism, Market Opportunities and Public Regulation. Zed Books: London.

JEKANOWSKI, M.D. / WILLIAMS, D.R. / SCHIEK, W.A. (2000): Consumers´ willingness to purchase locally produced agricultural products: An analysis of an Indian survey. In: Agricultural and Resource Economics Review 29 (8): 43-53.

KEELING, L., EVANS, A., FORKMANN, B., KJAERNES, U. (2013): Welfare Quality principles and criteria. In: Blokhuis, H., Miele, M., Veissier, I. and Jones, B. (Eds.). Improving farm animal welfare. Science and society working together: The Welfare Quality approach. Wageningen Academic Publishers: Wageningen. 91 - 114.

LABEL-ONLINE (2013): Was sind Label? In: http://www.label-online.de/ueber-label-onlinede/artikel32 Download: 18.02.2014.

LABEL ROUGE (2012): Notice technique définissant les ctritères minimaux à remplir pour l'obentention d'un Label Rouge en vollailles fermieres de chair URL: http://www.inao.gouv.fr/public/home.php?pageFromIndex=textesPages/Label_rouge_%28Guides_et_NT%29410.php~mnu=410. Download: 26.03.2014.

LABEL ROUGE (2014): Geflügel aus bäuerlicher Freilandhaltung. In: http://www.volaillelabelrouge.com/wpcontent/uploads/2014/01/Endverbraucherbroschure.pdf. Download: 25.03.2014

RSPCA (2013): RSPCA welfare standards for chickens. In: http://www.rspca.org.uk/ImageLocator/LocateAsset?asset=document&assetId=1232734135010&mode=prd. Download: 26.03.2014.

SCHULZE, B., LEMKE, D. and SPILLER, A. (2008): Glücksschwein oder arme Sau? Die Einstellungen der Verbraucher zur modernen Nutztierhaltung. In: Spiller, A. and Schulze, B. (Eds.): Zukunftsperspektiven der Fleischwirtschaft – Verbraucher, Märkte, Geschäftsbeziehungen. University Publishing Goettingen: 465-488.

SPOOLDER, H., DE ROSA, G., HÖRNING, B., WAIBLINGER, S. und WEMELSFELDER, F. (2003): Integrating parameters to assess on-farm welfare. In: Animal Welfare, 12 (4): 529-534.

THEUVSEN, L. (2011): Tierschutzlabel: Handlungsoptionen – Wirkungen – Verantwortlichkeiten. In: Akademie für tierärztliche Fortbildung Fachgruppe Tierschutz und Institut für Tierhygiene, Tierschutz und Nutztierethologie der Stiftung Tierärztliche Hochschule Hannover (Eds..): Aktuelle Probleme des Tierschutzes. Hannover: 63-71.

THEUVSEN, L., GAWRON, J.-C. und PLUMEYER, C.-H. (2007): Qualitätsanforderungen in Zertifizierungssystemen: Ansatzpunkte für die Messung von Qualität. In: G. Linß (Eds.): Messbare Qualität. Shaker Publishing Aachen: 180-201.

VOERSTE, A. (2008): Lebensmittelsicherheit und Wettbewerb in der Distribution. Ph. D. Thesis University of Hagen.