Strengths and weaknesses for the animal of upgraded welfare standards
Introduction

EconWelfare is a European research project aiming to provide suggestions for national and European policy makers to further improve farm animal welfare (AW).

The second Work Package (WP) of this project is focused on the “Stakeholder analysis of strengths and weaknesses of current standards and initiatives” which supports the further improvement of animal welfare in Europe.

What are the strengths and weaknesses of these initiatives and standards to the animal, society and the production chain?

To answer this question from the animal point of view, the analysis has been focused on the strengths and weaknesses of current animal welfare standards and initiatives according to the opinion of animal scientists (representing the animal) in order to reveal what has been attained (strengths) and what is missing (weaknesses) regarding animal welfare and to propose a kind of wish-list of upgraded standards for animals.

In order to perform the analysis, preparatory inventories have been made on the main findings of research and literature on what is known about the perceptions and opinions of animal scientists. Representative standards within the AW schemes considered in Sweden, Netherlands, United Kingdom, Germany, Poland, Italy and Spain, have been analysed according to the availability of comparable information about their main welfare issues (i.e. housing systems, management, genetics) which are beyond the minimal EU welfare requirements for seven species/categories of farm animals (fattening bulls, veal calves, dairy cows, sows and piglets, fattening pigs, laying hens and broilers).

The first outcomes of the comparative analysis carried out within WP1 of EconWelfare (Deliverable 1.2 report made by Forschungsinstitut für Biologischen Landbau) have been discussed in a European Expert meeting to collect the opinions of some of the most prominent European Animal Welfare Experts about the welfare benefits the animals may obtain within the AW schemes considered on the farm, during transport and in slaughterhouses.

This paper gives insight in the results of the Animal Expert meeting regarding strong and weak points of welfare standards from the animal point of view.

The Expert meeting

The European Meeting of Farm Animal Welfare Experts was organised by CRPA (WP2 manager) with the support of the University of Extremadura and was held on September 28th-29th, 2009, in Madrid at the National Institute for Research and Agricultural and Food Technology (INIA).

The participants were:

Chairman
- Kees de Roest, Head of the Department of Economics, Research Centre for Animal Production (CRPA), Italy.

Presentation of the EU upgraded standards
- Paolo Ferrari, Senior Researcher, Animal Housing Division, Research Centre for Animal Production (CRPA), Italy.
Animal Welfare Experts

- Bo Algers, Professor in Animal Hygiene, Department of Animal Environment and Health, Swedish University of Agricultural Sciences (SLU), Sweden.
- Lotta Berg, Associate Professor, Department of Animal Environment and Health, Swedish University of Agricultural Sciences, Sweden.
- John Webster, emeritus Professor in Animal Husbandry, University of Bristol, United Kingdom.
- Jörg Hartung, Head of the Institute of Animal Hygiene, Animal Welfare and Behaviour of Farm Animals, University of Veterinary Medicine of Hannover, Germany.
- Hans Spoolder, Senior Researcher, Wageningen UR Livestock Research, Netherlands.
- Antonio Velarde, Senior Researcher, Institute for Research and Technology in Agriculture (IRTA), Spain.
- Tadeusz Kaleta, Professor, Section Animal Behaviour, Department of Genetics and Animal Breeding, Warsaw University of Live Sciences (SGGW), Poland.

Almost all the Experts participated as member or collaborator to the EFSA panel on Animal Health and Animal Welfare.

The strengths and weaknesses have been evaluated according to the “animal” point of view, using a comprehensive collection of national and international scientific literature. The aim was to assess which technical aspects of the AW schemes are crucial and essential for a significant increase of animal welfare. A distinction has been made between organic schemes and non-organic schemes.

The two groups are:

**ORGANIC SCHEMES**

- Soil Association in United Kingdom;
- KRAV in Sweden;
- Bioland, Naturland and Demeter in Germany;
- SKAL in the Netherlands;
- EC basic rules for organic farming (EC Regulation 889/2008) in Poland, Italy and Spain.

**NON ORGANIC SCHEMES**

- Neuland in Germany;
- Freedom Food, Marks & Spencer, Elmwood and Assure British Pigs in the United Kingdom;
- Better Life for veal, Milieukeur pigs, Scharrelei and Volwaard poultry meat in the Netherlands;
- Naturama, Agriqualità and LAIQ in Italy;
- Swedish EggAssociation’s animal welfare programme in Sweden.
To allow the experts to compare the AW schemes, the standards have been clustered and presented, according to the welfare principles and criteria generated by the Welfare Quality® project to assess animal welfare on farm, in transport and before slaughter (http://www.welfarequality.net/everyone/41398/5/0/22).

Thus the experts were asked to explain their opinion about the effectiveness of each upgraded standard and to list, for the all seven species, the most important distinguishing aspects of the upgraded standards which are able to improve the animal welfare to a large extent beyond the minimal welfare requirements required by the EC basic legislation on animal welfare (see Annex).

To point out such important aspects the experts took into account:
- what is already required by the EU AW basic legislation;
- the housing and rearing systems commonly used in Europe;
- the scientific knowledge about the capability of the upgraded standards to improve the welfare of each species.

Some aspects of the upgraded standards were not considered as the most important for some species because, for example:
- the impact of the upgraded standard on the welfare of one or more species was not strong enough to be considered as most important (i.e. lightening, access to outdoor run, bedding material on vehicles for transport);
- the aspect does not add much to what is already ruled by EC legislation to satisfy the animal welfare need (i.e. facilities for sows and gilts to avoid competition to access feed);
- the aspect concerns the reduction of one welfare problems (i.e. tail docking) but, at the same time, exposes the animals to other welfare problems (i.e. more lesions and cannibalism).

This does not mean that the distinguishing aspects, which were not pointed out by the experts as most important for the considered species, are not important at all or are not able to improve their welfare.

The most important distinguishing aspects of the upgraded standards required by EU AW schemes considered by EconWelfare are the technical aspects directed to solve some of the most relevant welfare problems for the considered species.
Distinguishing aspects of upgraded standards

Tables 1 and 2 show the distinguishing aspects of the upgraded standards on farm, in transport and before slaughter. The red boxes indicate the aspects the AW Experts pointed out as the most important for each of the seven species/categories whereas the grey boxes indicate the aspects the AW Experts did not pointed out as the most important.

The Animal Welfare Experts also pointed out that a number of further aspects should be foreseen to overcome specific welfare problems which the EU legislation and AW schemes have not yet dealt with.

The most important aspects of the upgraded standards, pointed out by the Experts for the seven species/categories of farm animals, are listed in the following pages.

The choice of such aspects is explained briefly by means of statements asserted by the Experts during the meeting and of short sentences drawn from the analysis of the recent relevant European scientific literature.

<table>
<thead>
<tr>
<th>Welfare Quality^ PRINCIPLES</th>
<th>Welfare Quality^ CRITERIA</th>
<th>Distinguishing aspects of considered welfare standards</th>
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<tbody>
<tr>
<td>Good feeding</td>
<td>Absence of prolonged hunger</td>
<td>Allowance of roughage</td>
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<td>Facilities to avoid competition for feed</td>
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<td>Minimum age at weaning</td>
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<td>Natural milk for young calves</td>
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<td>Good housing</td>
<td>Comfort around resting</td>
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<td>Allowance of calving pens</td>
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<td>Good health</td>
<td>Absence of injuries</td>
<td>Avoidance or limitation of slatted floors</td>
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<td>Absence of disease</td>
<td>Restricted use of antibiotics</td>
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<td>Avoidance of ipermuscled breeds and fast growing strains</td>
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<td>Absence of pain induced by management procedures</td>
<td>Avoidance of electric prods/trainers</td>
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<td>Avoidance of mutilations (castration, beak trimming)</td>
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<td>Appropriate behaviour</td>
<td>Expression of social behaviour</td>
<td>Stable groups to avoid aggressive behavior</td>
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<td>Expression of other behaviour</td>
<td>Environmental enrichment (manipulable materials, dust bath, perches)</td>
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<td>Good human-animal relationship</td>
<td>Regular visits</td>
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<td>Positive emotional state</td>
<td>No aspect</td>
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Table 1 - Distinguishing aspects of the EU upgraded standards considered by EconWelfare for animal welfare on farm
In the following paragraphs the most distinguishing aspects per species of existing standards according to the experts are described in more detail. Furthermore, important welfare aspects that are still lacking in existing standards as pointed out by the experts are described, where applicable for a specific species or in general for all species at the end of the paper.
Most important aspects of upgraded standards for fattening bulls

Allowance of roughage
Fattening bulls must have always enough roughage for a normal rumen development. In case the animals are fed with high grain diets, such as barley beef in UK, the animals are exposed to specific diseases (i.e. rumenitis).

Microclimate control to prevent cold/heat stress
Microclimate control is extremely important when the calves are younger because of respiratory diseases.

Space allowance
The problem in practice is space allowance, as there is no EU legislation about it and they are usually overcrowded. There should be at least enough space to lay without interference.

Avoidance of castration
Castration should be avoided whenever possible. It should be permitted only for animals reared extensively on pasture and slaughtered at 24-30 months. For intensively finished young cattle (14-15 months) castration would not be carried out anyhow.

Drinking before transport
Drinking should be provided just before loading on vehicle for transport.

Race and passageways design in transport and before slaughter
A good design of runs for animals is very important to permit stress free movement from the farm to abattoirs, markets and, above all, during loading and unloading. Ramp slope should be reduced as much as possible.

Avoidance of electric prods
Electric prods, whose use is limited by EU legislation, are not necessary if the races are properly designed and you have trained staff.

Stunning efficiency
Stunning efficiency before killing is a high priority for all farm animals before slaughter; time between stunning and bleeding is also crucial and depends on the stunning methodology.

Lacking norms in existing standards about good stockmanship
Stockmanship is very important. On some farms the attendance of stockpeople is very poor because these beef bulls are considered as a by-product of the farm.

On farm:
- allowance of roughage
- microclimate control to prevent cold/heat stress
- space allowance
- avoidance of castration

In transport and before slaughter:
- drinking before transport
- race and passageways design
- avoidance of electric prods
- stunning efficiency
### Most important aspects of upgraded standards for VEAL CALVES

**Allowance of roughage**
Improper nutrition and quality of environment are the major problems for veal calves. Actually the roughage allowance required by legislation does not meet the aim which should be to provide natural roughage to permit normal rumen development. The biggest problem of infection diseases in veal calves arises from the failure to achieved normal rumen development. A consequence of enteric infections in commercial veal calves is anaemia (iron deficiency).

**Microclimate control and restricted use of antibiotics**
Unfortunately in many cases veal calves are still kept in dark stable with poor ventilation and with a lot of antibiotics.

**Space allowance**
Improper nutrition is the major predisposing factor to enteric infections as well as overcrowding.

**Stable groups to avoid aggressive behaviour**
Calves from different herds should not be mixed. Purely from the animal point of view it is a bad idea to take all these young animals in different herds and to put them together because we know that they will get infections. It would be a better idea to let them staying at the farm where they are grown up and where they have some immunity against diseases on the farm. It is a very baseline principle which enhance welfare.

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<th>On farm:</th>
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<tr>
<td>• allowance of roughage</td>
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<tr>
<td>• microclimate control to prevent cold/heat stress and air quality</td>
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<td>• space allowance</td>
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<td>• stable groups to avoid aggressive behaviour</td>
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<th>In transport and before slaughter:</th>
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<td>• drinking before transport</td>
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<td>• race and passageways design</td>
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<td>• avoidance of electric pods</td>
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<td>• stunning efficiency</td>
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Most important aspects of upgraded standards for DAIRY COWS

Allowance of roughage
Feeding systems should allow every individual cow to meet its needs for quantity and quality of feed. Dairy cattle should be fed with adequate provision of roughage for a correct rumen development.

Facilities to avoid competition for food and water
In loose-housed cows, the area around each feeding place is a location where much aggression can occur. Therefore, the feeding area should be designed in such a way and with sufficient space that all cows can feed with minimal aggression or other interference. Both indoors as well as outdoors, continuous access to water should be provided. Automatically regulated troughs and drinker bowls should be installed in the animal houses and farmyards.

Bedding material in laying area
All dairy cows should be provided with soft bedding in the laying area such as straw, sand or other deformable material.

Avoidance of tethering and or individual housing
Loose housing creates better welfare conditions as cows can choose standing place more freely and take more comfortable lying position. The worst system of cattle keeping from the animal welfare point of view is tethering in barns without outdoor walks.

Space allowance
Space allowance is extremely important for welfare of dairy cows. Cubicles for dairy cows should be comfortable, equipped properly and shaped according to animal size.

Avoidance of electric prods/trainers
Electric goads should not be used on cattle.

Drinking before transport
Cows should have free access to water up to the point of transport.

Race and passageways design in transport and before slaughter
A good design of runs for animals is very important to permit stress free movement from the farm to abattoirs, markets and, above all, during loading and unloading. Ramp slope should be reduced as much as possible.

Avoidance of electric prods
Electric prods, whose use is limited by EU legislation, are not necessary if the races are properly designed and you have trained staff.

Stunning efficiency
Stunning efficiency before killing is a high priority for all farm animals before slaughter; time between stunning and bleeding is also crucial and depends on the stunning methodology.

Lacking norms in existing standards about cow’s lameness and good stockmanship
Lameness is a biggest problem for dairy cattle, but the EU standards do not deal with. Adequate provisions for feet care are needed. Floor quality is important but not as important as feet care.
Good quality skilled and compassionate stockman is important for absence of pain and stress in animal handling.

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On farm:
- allowance of roughage
- facilities to avoid competition for food and water
- bedding material in laying area
- avoidance of tethering and or individual housing
- space allowance
- avoidance of electric prods/trainers

In transport and before slaughter:
- drinking before transport
- race and passageways design
- avoidance of electric prods
- stunning efficiency
**Most important aspects of upgraded standards for sows and piglets**

**Minimum age at weaning**
Early weaning will increase the use of antibiotics to treat diarrhoea.

**Microclimate control to prevent cold/heat stress**
Heat stress control is very important for farrowing and lactating sows in the hot season, particularly in the Southern European Regions.

**Avoidance of individual housing**
Farrowing crate is a huge welfare gap in the environment of farrowing and lactating sows. In Sweden and Switzerland farrowing pens without crates seem to work whereas in some other countries they do not function. There are commercial farms in the USA, from 100 to 200 sows, operating with loose farrowing systems for years and years. A crucial factor for piglet mortality is maternal behaviour.

**Avoidance/limitation of slatted floors**
Inadequate flooring as a welfare problem can lead to claw injuries, over-grown claws and pain. Slatted floor should be reduced as much as possible as well as the width of the slots between the slats.

**Stable groups to avoid aggressive behaviour**
Pregnant sows should be kept in stable groups as much as possible to reduce lesions and stress due to fights and aggression. Furthermore some commercial diets for pregnant sows are not really satisfying the sows’ needs because they do not fill their stomach so the sows start to look for more feed and become aggressive.

**Environmental enrichment/manipulable materials**
Sows and piglets should be allowed to root by providing them enriched pens with manipulable materials. Sows before farrowing should be provided with proper material to let them build the nest, as rooting and nest building is considered to be the natural behaviour of the pigs and they should be allowed to express this behaviour; to this end the housing systems should be designed and equipped to manage such kind of materials.

**Race and passageways design in transport and before slaughter**
A good design of runs for pigs is very important to permit stress free movement from the farm to abattoirs, markets and, above all, during loading and unloading; to this end the ramp slope should be limited as much as possible because pigs hesitate to move and get irritated when they have to climb.

**Stunning efficiency**
Stunning efficiency before killing is a high priority for all farm animals before slaughter; time between stunning and bleeding is also crucial and depends on the stunning methodology.

**Separation of unfamiliar groups**
As mixing unacquainted pigs during transport and in the abattoir’s lairage before slaughter leads to a substantial risk of fighting and injury, a higher welfare may be reached if animals of different groups are not mixed.

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**On farm:**
- minimum age at weaning
- microclimate control to prevent cold/heat stress
- avoidance of individual housing
- avoidance/limitation of slatted floors
- stable groups to avoid aggressive behaviour
- environmental enrichment/manipulable materials

**In transport and before slaughter:**
- race and passageway design
- stunning efficiency
- separation of unfamiliar groups
Most important aspects of upgraded standards for fattening pigs

Facilities to avoid competition for feed and water
Efficient drinking and feeding facilities able to avoid pigs’ competition for feed and water are very important to limit stress and suffering due to aggressions and fights and to ensure an adequate nutrition to them.

Microclimate control to prevent cold/heat stress
Heat stress control is important in the hot season and in particular in the Southern European Regions.

Space allowance
Space allowance is important, but so is the design and the enrichment of the pens in order to create different clearly identifiable sections of the pen. If you are a pig you want to have access to your laying place, to your feeding space, to your drinking space and to your dunging area.

Limitation of slatted floor
Fully slatted floors lead to a higher risk of lameness than partly solid floors and the prevalence of bursitis is higher. At the same time slatted floors have some benefits from the animal point of view in terms of hygiene and efficient ventilation in hot climates; that is why the pens should not be fully slatted floored.

Race and passageways design in transport and before slaughter
A good design of runs for pigs is very important to permit stress free movement from the farm to abattoirs, markets and, above all, during loading and unloading; to this end the ramp slope should be limited as much as possible because pigs hesitate to move and get irritated when they have to climb.

Stunning efficiency
Stunning efficiency before killing is a high priority for all farm animals before slaughter; time between stunning and bleeding is also crucial and depends on the stunning methodology.

Separation of unfamiliar groups
Mixing unacquainted pigs in transit and before slaughter leads to a substantial risk of fighting and injury. No mixing of animals of different groups or herds is extremely relevant for pig welfare because almost all the pig transports are mixed and you obtain higher welfare if you do not mix the animals of different groups.

On farm:
- facilities to avoid competition for feed and water
- microclimate control to prevent cold/heat stress
- space allowance
- limitation of slatted floor

In transport and before slaughter:
- race and passageways design
- stunning efficiency
- separation of unfamiliar groups
Most important aspects of upgraded standards for laying hens

Microclimate control to prevent cold/heat stress
Thermal comfort is very important for laying hens.

Space allowance
Sufficient space allowance is a priority for intensively kept laying hens. Small groups of hens in a certain limited space do not have many options, but in larger groups of hens, with the same stocking density, the hen has more options and more freedom of choice to improve its welfare.

Avoidance of beak trimming
Beak trimming is a welfare problem but it is also able to reduce feather pecking which is considered as a worse welfare problem than beak trimming. There should be sufficient measures to avoid feather pecking in not beak trimmed hens even though the current rearing systems are not prepared to adopt them.

Availability of dust bath and perches to enrich the environment
Dust baths and perches as additional components for environment enrichment are positive because allow the hens to express natural behavior patterns. As regards to the availability of dust bath, which is already required by the EU legislation, the questions are: is it large enough? Is there sufficient and proper material in it?
Perches improve also the health and the bone strength of hens. What is important is also the proper size, the elevation and the space available above the perches; the principle is that hens must have the possibility to jump.

Stunning efficiency
Stunning efficiency before killing is a high priority for all farm animals before slaughter; time between stunning and bleeding is also crucial and depends on the stunning methodology.

Lacking norms in existing standards about pullet rearing to reduce feather and vent pecking
There is a great number of possible risk factors for the development of feather and vent pecking, whereby the rearing period is of particular importance. Hence it makes no sense to have a standard for laying hens without having a standard for pullet rearing.

On farm:
- microclimate control to prevent cold/heat stress
- space allowance
- avoidance of beak trimming
- availability of dust bath and perches to enrich the environment
- regular visits of the stockman to the flock

In transport and before slaughter:
- stunning efficiency
Most important aspects of upgraded standards for broiler chickens

Allowance and quality of litter
Litter quality and air quality (ammonia and dust contents above all) are linked to each other and together enhance broiler welfare significantly.

Prevention of cold/heat stress and air quality
Microclimate control is very important to limit heat stress because broilers are very sensitive to it.

Space allowance
Management issues are as important as stocking density, but when certain levels of stocking density are exceeded it is difficult to compensate for that overcrowding by other management aspects.

Avoidance of fast growing strains
There is hard scientific evidence that there are fast growing strains of broilers that in the way they are raised incur suffering. The reason of not banning fast growing strains is primarily related to economic reasons.

Regular visits
Regular and careful visits of the farmer to animal houses is an important aspect for a good human-animal relationship which is assured also by management skills, interest, attitude and experience of the farmer.

Stunning efficiency
Stunning efficiency before killing is a high priority for all farm animals before slaughter; time between stunning and bleeding is also crucial and depends on the stunning methodology.

On farm:
- allowance and quality of litter
- prevention of cold/heat stress and air quality
- space allowance
- avoidance of fast growing strains
- regular visits

In transport and before slaughter:
- stunning efficiency
Lacking norms in existing standards for the ALL SPECIES

Housing systems allowing freedom of choice
An animal can achieve a positive emotional state when it is allowed to make constructive contribution to cope with life. We should give them an opportunity; a freedom of choice (i.e. a varied environment or a housing system in which the animal is free to choose between different options to satisfy his needs).

Good stockmanship
Good stockmanship is extremely important to guarantee all farm animals from poor welfare. It may be improved not only by mandatory training, which is already in EU legislation for some species, but also through economic and social incentives.

Thermal comfort in transport
Thermal comfort is very important for short and long transport. During the hot season the temperature inside the lorries may rise very quickly when the lorries are halting because of stops or traffic jams. Important is a vehicle design which allows thermal comfort at rest and in motion.

Maximum waiting time in the lairage of abattoirs
A maximum waiting time in the lairage of abattoirs should be provided for. More and more large abattoirs use to store cattle, sheeps and pigs in the lairage overnight for a too long time (i.e. for 12-24 hours) before slaughter.

Emergency killing
Slaughter is only one case of killing but there are other cases as well by definition. Standards should be improved for euthanasia and emergency killing.

Incentives for transporters and slaughter staff
Transporters and slaughter staff should have economic incentives to improve animal welfare (i.e. according to the percentage of dead animals on arrival at the abattoir and to the stunning efficiency).

On farm:
- housing system allowing freedom of choice
- good stockmanship

In transport and before slaughter:
- thermal comfort in transport
- maximum waiting time in the lairage of abattoirs
- emergency killing
- incentives for transporters and slaughter staff
Concluding remarks

Based on the first outcomes of the comparative analysis of upgraded animal welfare standards in EconWelfare partner countries, farm animal welfare experts have given their science-based opinion about the most distinguishing welfare aspects of existing standards and important welfare issues that are overall still lacking from the animal point of view.

The list of most important distinguishing welfare aspects per species is used by the project partners to analyse the strong and weak points of the selected public and private welfare standards in their country.

Combined with the analysis of attitudes of chain actors and society towards these upgraded welfare standards (still carried out within Work Package 2), it will give insight in the overall wishes regarding further upgrading of animal welfare within the EU. These wishes form an input to the next work package of the EconWelfare project, which will identify suitable policy instruments to realise the desired welfare enhancements within different types of EU countries. New results will be communicated when available.
ANNEX

EU basic legislation for the welfare of farm animals

- Directive 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes;
This report is the official deliverable 2.4 “Report containing the results of the European expert meeting on the (dis)advantages for the animal of increased animal welfare standards” of the EcoWelfare project.

EcoWelfare is a European research project aiming to provide suggestions for national and European policy makers to further improve farm animal welfare. In collaboration with stakeholder groups it collates and investigates the options and their impacts on the livestock production chain, the animal and European society.

The research leading to these results has received funding from the European Community’s Seventh Framework Programme under grant agreement no. KBBE-1-213095. More details on the strengths and weaknesses of upgraded welfare standards from the animal point of view can be found in the Deliverable 2.3, which can be obtained from the Project Office:

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