

Animal Welfare in EU: the perspective of ASPA (*Italian Animal Science and Production Association*)

Humans must safeguard animals and environment

The concept of respect for animals is inherent in human nature and suggests that animals have an intrinsic value for humanity and the planet (UNESCO, 1978; Proctor, 2013). Humans have a responsibility towards all animals, wild and domestic (Webster, 1994), protecting them in whichever environment - to maintain the richness of the biodiversity on the planet - and safeguarding the quality of their lives. However, this concept requires set in the cultural context that motivates the human-animal interactions to protect and care for all animals. This should be done without precluding their use for the benefit and survival of humanity. Indeed, history demonstrates that the prosperity of humanity requires many "services" provided by animals (such as food, work, companionship, clothing, landscape management). In exchange, animals receive protection and nourishment that provide them with an adequate level of well-being. In this context in the next few years, two of the main challenges for human society will be: (i) to address the increasing demand for food, in particular animal-derived products, to sustain the dramatic increase the world population and maintain the improved lifestyle of developing countries and (ii) to minimize the global impact of livestock production in terms of soil and water consumption, greenhouse gas emission and release of essential plant nutrients in the manure (FAO, 2021).

The need of objective assessment of animal welfare

The relationship between animals and humans has become progressively difficult to manage and often leads to conflict partly because ideas differ among citizens depending on their education, cultural backgrounds and philosophy. In particular the concept of "sentient animals" is sometimes divisive. For some people only a wild existence can guarantee a satisfactory life for animals. Often this consideration is combined with other concerns, such as the poor sustainability of animal farms and ethical doubts about the consumption of food of animal origin. Thus, more restrictive rules are being put in place for many human activities, from livestock farming to hunting, which may eventually go as far as abolishing animal farms. For some people, however, activities that involve animals remain essential and only need to be better regulated by legislation. The best way to help these different standpoints to converge is to consider the complexity of human-animal interactions in a holistic scientific analysis.

Abolishing farming activities, including the limitation of household pets, seems unrealistic, but it is clear that the concept of livestock farming needs to evolve. The phasing out of all cage systems used in farms in Europe, as foreseen by the European Parliament (2021), is one of the first actions towards improving welfare. Cage-free systems provide animals with possibilities for free movement and the expression of a wider range of behaviours, including social interactions, but research is still needed to minimize the possible increased risk for aggressive behaviour, lesions, injuries and mortality for some species (Armstrong et al., 2020; EFSA, 2020b; Pedersen et al., 2020; Schuck-Paim et al., 2021). The first crucial step is the proper and objective assessment of animal welfare (AW), for whichever species in all developmental stages or physiological states, using the most appropriate technologies (Caroprese et al., 2009; Loor et al., 2013; Kruger et al., 2020; Battini et al., 2021).

A specific consideration for animal farming regards meat production. Indeed, eating animals poses several moral dilemmas, including the acceptability of the sacrifice of animal and methodology of the sacrifice, which is already regulated in EU. Nevertheless, many other aspects should also be considered, including the fate of animals bred for milk and egg production, and how to deal with wild animals that cause damage to farmed animals, affect animal husbandry and otherwise harm

agriculture. In this respect, a permanent scientific commission could inform EU decisions after deep scientific and philosophical study and discussions, taking in account all possible consequences for the human society and the planet.

The importance of using the ‘One welfare’ approach

We recognise the importance of revising the present European regulation on AW because of the significant scientific progress that has been made in the recent years. In addition, the public has an increased desire to improve welfare standards by providing animals more possibilities of a pleasant life, experiencing positive feelings (Green and Mellor, 2011), and reduced pain and suffering (Brambel, 1965). There is the need for a common shared European framework to pursue the highest animal welfare levels, both for farmed and companion animals, and to guarantee consistent AW levels in all European countries.

Revision of AW regulations should include a comprehensive One Welfare approach (Pinillos et al., 2016) which recognizes interconnections between animal welfare, human wellbeing and the global environment, which should be included in the holistic One Health vision (WHO, 2021). Attention must be paid to changes in welfare and health challenges experienced during the life of an animal, and to the different farming conditions used across Europe for the different species and categories. At a societal level, animal farming plays a key role in the reduction of poverty and hunger, which is consistent with the Sustainable Development Goals of the United Nations, and to address the increasing demand of highly nutritious food at a global level. However, ethical animal-friendly and sustainable production systems will result in higher prices that consumers must be willing to pay for animal products obtained respecting AW. Changes must be favourable from an economic point of view to be adopted in farming systems. Additionally, it is important that there is communication about AW and farming systems among consumers, farmers and other stakeholders. In this respect, the animal food chain dedicated at the meat production appears particularly critical. Impacts of animal farming on agro-ecosystems should be evaluated (Cocca et al., 2012), including measures to control zoonosis, and the valorization of the use of animal manure as an agricultural fertilizer in the perspective of the circularity of farming activities.

Proposal for European future AW regulations

All new regulations should take into account recent scientific findings and follow the advice coming from the most up-to-date research on AW. Furthermore, it should fill the gaps regarding the specific minimum requirements for each farmed species and production category in different systems, including companion animals and those species that are currently addressed only in general terms. To this end, as continuously underlined by EFSA works and opinions, research with a multidisciplinary approach on welfare of farmed animals needs to cover the following issues:

- lack of information on many of the behavioural needs for additional commonly bred species (such as rabbits and fish);
- lack of studies from Southern European countries characterized by different climate and feed conditions (e.g. sheep and goats);
- lack of information about the influence of different environmental conditions found across the EC countries on AW. It is indeed worth noting that the results of studies carried out in specific conditions (i.e. limited genotypes, same climate conditions, specific reared system, the same diet) are not sufficient to define generalised rules for AW (e.g. data collected overseas or assessments in Northern Europe which are not relevant in the context e.g. of the Mediterranean area);
- lack of open-access datasets on farm animal productivity indexes, morbidity and mortality rate, which are required to carry out robust risk factor analyses.

Looking forward robust AW evaluation: challenges, chances and needs for effective and feasible protocols

In order to guarantee more transparency and coherence, it is of the utmost importance that a common approach is adopted across the EC for on-farm welfare evaluation. Despite the EC research projects investigating the setting up of on-farm welfare evaluation protocols for many species (e.g. Welfare Quality and AWIN; Caroprese et al., 2009; Blokuis et al., 2013; Canali et al., 2015), at present, there is no common approach and not all species are covered. Each Member Country is adopting different protocols (on a voluntary or compulsory basis), which often include some measures derived from the EC funded projects. Protocols already available are seldom adopted, in part due to the long time-frame required for their complete application.

It is our opinion that the new regulations should include clear indications and benchmarks regarding the evaluation protocols to be adopted at the EU level. We believe that such recommended protocols should be made available for all species, animal categories and farming systems, in order to encompass all possible situations that may be found across the various geographic regions. The regulations should focus on objective and robust Animal-Based Measures (ABMs) and they may also include measures on structures and management (diet included). The selected indicators should be repeatable and feasible (EFSA, 2012; EFSA, 2020a) .

The potential of Precision Livestock Farming

Many ABMs, which can be included in the protocols, may be made available by the application of new Precision Livestock Farming (PLF) techniques. PLF technologies are continuously evolving and represent promising tools for AW assessment as they facilitate automated, continuous and real-time monitoring of animal behavior and physiological responses. The holistic and evidence-based approach provided by PLF systems is currently used by the scientific community to increase the knowledge of AW. PLF technologies can monitor individual animals at many time points (Berckmans, 2014; Caja et al., 2016), contrasting the classical approach to welfare, in which animals are usually considered as the average of the population. PLF consists of a series of sensors located at the animal level or near the animal (for environmental measures) able to continuously collect data and information on animal health, behaviour and productivity. The data obtained through PLF are collected in real time and are standardized: if appropriately processed, this information can be used to create welfare indicators to develop quality control procedures, reducing the risks of illnesses, pain and stress (Monteiro et al., 2021). Furthermore, data acquired with PLF can be used as independent and objective information to validate AW protocols that are measured with other methods. The PLF technologies have some limitations: (i) this is a field in constant evolution and data collected needs considerable statistical processing (i.e. sensors collect a huge amount of data that should be used to create proper algorithms able to provide alerts and alarms for AW); (ii) they are not applicable in all the animal farming systems; (iii) they require significant economic investment; (iv) they are produced by private companies that should agree that data will be freely available to the scientific community and/or EC Authorities that assess AW. This necessarily requires scientific effort to define the most reliable indicators of AW in different species/conditions and to validate these tools with independent welfare indicators.

Suggested actions to revise the current AW legislation

In order to acquire all the necessary information for the revision of the current legislation, the following research activities should be undertaken:

- identification and validation of ABMs, including those collected by PLF tools, to address all welfare aspects (behaviour, health, feelings, performance), for all species, animal categories and farming systems under the different environmental conditions found across EU;
- identification of indicators of positive welfare (e.g. animal emotions, typical behavioural repertoire) that can be integrated into on-farm welfare assessment protocols, in extensive and intensive systems;
- refinement of existing welfare evaluation protocols, including positive indicators and identifying the critical ABMs to shorten the time required for AW evaluation, to increase feasibility while maintaining the validity and reliability of protocols;
- establishment of new on-farm welfare evaluation protocols for the species and animal categories for which protocols are not yet available, following the same criteria described for refining existing protocols;
- identification of risk factors that may compromise AW in all likely situations, to define minimum standards;
- identification of benefits that may allow animals to live a life that is worth living;
- identification of the best frequency of the AW assessment on farm to guarantee the maintenance of standards.

AW certification: a common European framework?

The compliance with the current European legislation on AW and the respect of minimum standards is a mandatory pre-requisite for all farms, and official periodic checks need to be carried out by the official veterinary services. Beyond this, the development and adoption of a common European voluntary certification system is highly recommended in our opinion. This could underpin the creation of an easily recognised AW label that may be used to certify farms which go beyond the mandatory requirements. Different AW levels could be recognised depending on the outcome of the certification process. Assessors should receive specific training to set a common standard, to ensure the reliability, repeatability and comparability of certification across the EC. The assessors should have an agricultural, animal science and/or veterinary background, and the basic necessary knowledge of animal behaviour, health and physiology and the needs of animals in terms of housing, feeding, management and environmental adaptation.

The importance of AW education

To enhance AW in all possible contexts (farm level, households, natural living conditions), it will not be enough to simply enforcing legislation. What it is crucial is the education of all people involved with animals. Educating these people (breeders, owners, animal handlers, zookeepers, the general public, etc) should be achieved through a range of providers and in different formats (courses, workshops, demos). It is necessary to consider 3 levels of education:

- Stakeholders. Employees in animal farms should be certified competent for appropriate animal handling, after attending courses that include topics such as recognizing and managing stress in animals in line with what is currently enforced for animal transporters.
- Owners of companion animals. The concept of responsible ownership should be fostered with appropriate training;
- The general public. Citizens should receive a wider education to better understand the interactions between humans and animals (farm, pet and wild). This will allow to raise the competencies on AW in the society and to improve the practices to ensure high levels of AW.

Training of those involved with animals should be accompanied with comprehensive public information campaigns aimed at general public and consumers to increase the awareness of AW management in Europe. The information should focus on the role of animal farming in the light of a One-Welfare approach that takes into account all possible relationships among animal welfare, human wellbeing and the environment.

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