
EMERGING ANIMAL WELFARE STANDARDS AND THEIR IMPLICATIONS FOR ANIMAL HYGIENE

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RECENT TRENDS IN ANIMAL WELFARE STANDARDS

During the last decade, many of the developed countries have seen a rapid move toward explicit farm animal welfare standards. In Europe, the process has been led partly by national governments and the European Union which have created mandatory animal welfare standards for most animal-based commodities. In the United States, the food service and retail sectors have played a major role, with companies like McDonald's and Burger King creating standards that their suppliers are required to meet. There has also been a growing trend toward defined alternative-production systems such as organic meat and free-range eggs, variously promoted by the animal protection movement, retailers, and alternative producers themselves.

Historically, three trends have contributed to this move toward animal welfare standards. One is the emergence of intensive animal production systems during the last half century. These systems were developed to maximize production efficiency through some combination of automation, confinement housing, genetic selection for production traits, scientific feed formulation, and the use of performance-enhancing pharmaceuticals. The push for efficient production, although arguably promoting animal welfare at some levels, is widely perceived as creating certain animal welfare problems. Examples include lameness in broiler chickens resulting from genetic selection for rapid growth, and severe restriction of movement of pregnant sows confined in stalls for individual feeding and efficient use of space. Issues such as these have provoked widespread criticism and public concern over farm animal welfare.

A second trend has been a shift in how the public perceives animal production. Traditionally, animal agriculture was widely viewed as a form of independent enterprise involving an admirable lifestyle and a close relationship with animals and the land. Today, however, there is common perception (sometimes justified, sometimes not) that animal production is more of an industrial and technological activity, substantially controlled by corporate owners. This change has come at a time when there is widespread distrust of industrialization and corporations (especially when these intrude into the processes of nature) as evidenced by protest against genetically modified food and global trade. The change in attitude toward animal producers has left the public more willing to impose animal welfare standards on food producers.

A third trend is the rapid increase, since about 1950, in humanitarian attitudes toward animals, especially in the European and English-speaking world. These changes in attitude have led to demands for standards and safeguards for the care and use of animals in all fields including biomedical research, entertainment and wildlife management. The trend toward farm animal welfare standards represents, in part, a similar expectation being placed on animal production.

DIFFERENT VIEWS OF ANIMAL WELFARE

These trends have contributed to, or at least helped to reinforce, three different views of how animals should be raised and, hence, how animal welfare should be assessed (Duncan and Fraser 1997; Fraser et al. 1997). One view is based on the “biological functioning” of the animal: its health, growth, production efficiency and correlated traits. This view is common among intensive animal producers and some veterinarians and animal scientists. According to this view, animal welfare standards should focus on the health, growth, and productivity of animals; hence, intensive production systems, however unnatural they may seem, should be viewed as good for animal welfare as long as the animals are healthy, growing, and reproducing well.

A second view is that animals should be allowed to lead natural lives by carrying out their normal behaviour in a reasonably natural environment, free from undue restraint. This view is common among consumers and many social critics of modern animal production. To those holding this view, animal welfare standards should eliminate long-term confinement of animals which prevents most of the animals’ natural behaviour.

A third view emphasizes the “affective states” of animals -- pain, suffering, and other feelings and emotions. This view is common in humanitarian thinking and among some animal welfare scientists. According to this view, animal welfare standards should ensure that animals are spared unpleasant affective states as much as possible, and are allowed to enjoy normal pleasures of life, whether this occurs in intensive or non-intensive systems.

These different views of animal welfare sometimes lead to similar conclusions. For example, if an animal is kept in a thermal environment to which it is well adapted (a natural living criterion), then it should not suffer from cold (an affective state criterion) nor have stress and disease problems caused by cold (a biological functioning criterion). Nonetheless, the three views involve quite different areas of emphasis in assessing animal welfare and sometimes lead to conflicting conclusions about appropriate animal welfare standards.

INFLUENCE OF THESE VIEWS ON ANIMAL WELFARE STANDARDS

Each of these views has influenced the emerging animal welfare standards. Some of the most widely followed standards are based largely on biological functioning criteria. For example, until 2003, the European Union required a space allowance of 450 square centimeters per laying hen in cages, and a similar figure (72-75 square inches) is required in the United States by McDonald’s Restaurants and Burger King. This space allowance is based on research showing that rate of lay, survival and other performance parameters are reduced at higher stocking densities. Obviously the standard is not based on natural living criteria (as caged birds with this space allowance are still unable to carry out much of their normal behaviour), nor on affective state criteria (as the cages are likely to frustrate some of the birds’ motivation, for example to dust-bathe and to retreat to a secluded nesting area to lay).

Standards used in organic production and some alternative production programs are based more on a natural living approach. For example, free-range and many organic standards prohibit the use of cages and require that laying hens have regular access to perches, nest-boxes and the outdoors where they can roost, nest, and search for food in a natural manner. Similarly, the United Kingdom’s Freedom Foods standard for pigs prohibits the use of gestation stalls because these restrict freedom of movement, and the standard requires that nesting material be provided so that sows can perform nest building before farrowing.

Certain other standards, for example in humane slaughter, are based mainly on affective state criteria. For example, the animal welfare standards for slaughter plants supported by the American Meat Institute require that the use of pain-causing electrical prods be minimized, that stunning be successful on the first try in the great majority of cases, and that vocalizations (as signs of distress) be rare. Similarly, some animal welfare standards require the use of local anaesthetic for certain surgical procedures, such as electrical disbudding of calves, in order to eliminate avoidable pain.

THE ROLE OF SCIENCE

It would be comforting to think that science could arbitrate among the three different views of animal welfare, and demonstrate which one or ones are scientifically valid. In reality, scientists have claimed scientific validity for all three.

Biological functioning.

A number of animal scientists and veterinarians have advocated biological functioning criteria as the key to animal welfare. For example Barnett et al. (2001, p. 3) put special emphasis on “relative changes in biological... responses and corresponding decreases in fitness” including “widely accepted criteria of poor welfare such as health, immunology, injuries, growth rate, and nitrogen balance”. They acknowledged that other measures play a role in animal welfare, but assumed that all risks to welfare should have “consequent effects on fitness variables such as growth, reproduction, injury, and health”. Applying these criteria to the welfare of pregnant sows, for example, they concluded that individual stalls (where the animals are unable to walk during most of pregnancy) can meet the animals’ welfare requirements.

Natural living.

Few scientists today would support the simple view that animal welfare depends on the animal carrying out all its natural behaviour in a natural environment because natural environments contain many hardships (harsh weather, predators), and natural behaviour includes many means of dealing with hardship (shivering, fleeing). However, a more sophisticated natural-living approach has been proposed, partly as a critique of functioning-based approaches. Barnard and Hurst (1996) noted that according evolutionary theory, natural selection “designed” animals to live in particular ways which, during the evolution of the species, resulted in high reproductive success. For a long-lived, slow-reproducing species such as humans, this design includes preserving oneself from being over-taxed by disease and injury. Other species, however, may be designed not to preserve but to expend themselves in ways that promote reproductive success. Hence, although measures of health, longevity, and low levels of stress may seem (to humans) to be valid indicators of welfare, applying these measures to other species may be inappropriate. Instead, argued Barnard and Hurst (1996), we should judge animal welfare on the basis of whether the animal is able to live in the manner for which it was designed by natural selection.

Affective states.

The approach based on affective states has received perhaps the greatest amount of theoretical scientific development (Duncan 1996, Dawkins 1998). The central argument is that although natural selection has shaped animals to maximize their reproductive success, this is

achieved by proximate mechanisms involving affective states (pain, fear, separation distress, etc.) which motivate behaviour. Thus, for example, although natural selection has favored sows that raise many healthy piglets, the proximate mechanisms involve specific motivations to search for a safe nesting place, to defend the nest from intruders, to remain with the litter during their first few days, and so on. In an artificial environment, a sow may achieve a high level of production even though she is unable to carry out these types of behaviour and may be frustrated and distressed as a result. Hence (according to this view) animal welfare may be poor even though productivity is high.

Scientists who champion one or other of these views have sometimes claimed that their particular interpretation of animal welfare is correct or scientifically based, whereas the others are not. To take just one example, Barnett et al. (2001), in using biological functioning criteria, claimed that their approach to welfare is based on science, whereas alternative approaches are based on "public perception". In reality, scientific research can clarify the strengths and weaknesses of the different interpretations, but science does not demonstrate that any one approach is scientifically based and the others not. Partly this is because the different views of animal welfare rest on different philosophical or value-dependent positions which cannot be resolved by scientific evidence (Fraser et al. 1997).

Even if we could overcome the philosophical differences, there would still be difficult practical problems in comparing the animal welfare implications of very different standards. Animal welfare is influenced by many different elements, and systems based on only one or other view of welfare are likely to miss important factors. For example, the best of science cannot tell us whether, on net, lambs have better quality of life when raised on milk-replacer in a warm, crowded barn, or when raised naturally on pasture where freedom to romp and play is tempered by the vagaries of weather and foxes.

THE CHALLENGE OF MEETING PUBLIC EXPECTATIONS

The move toward explicit animal welfare standards is arguably a positive development for all parties: for consumers who will have a means to identify products that meet their ethical concerns; for producers who, after decades of criticism, will have concrete ways to demonstrate that they follow recognized animal welfare standards; and for those animals that would receive worse treatment if explicit standards were not in place. However, the rapid and complex move toward animal welfare standards will need to be handled carefully so as not to lose public trust.

With a wide variety of programs, all claiming to indicate a high standard of animal welfare, there is a risk that the public will simply become confused by the conflicting claims and disillusioned with the process. Hence, there is a need to communicate not only the standards but the basis on which they have been developed. A positive example is the Freedom Foods program in the United Kingdom which sets out its guiding principles (freedom from pain, injury and disease, freedom to express normal behaviour, etc.) as well as its particular production specifications. In contrast, some programs claim to ensure a high level of animal welfare while still allowing controversial measures such as severe restriction of movement or infliction of avoidable pain. Unless the underlying philosophy is explained, the public may come to view such programs as cynical attempts to co-opt the concept of welfare assurance without real reform.

There is also a need for trade-offs among different elements of animal welfare to be defensible. Beak-trimming of hens may be a defensible imposition on the birds if it prevents later cannibalism. Restriction of movement during parturition may be a defensible practice if it prevents sows from injuring their piglets. However, such trade-offs need to be reasonable and honestly set

out. Defenders of the gestation stall for sows often point out (rightly) that the stall prevents aggression and allows individual feeding, but they rarely point out that these objectives could be achieved, albeit at greater cost, by housing sows in larger individual pens where normal movement is not prevented. In this case, a claim about an animal welfare trade-off is used to justify a practice when, in reality, cost-cutting is clearly an underlying motivation.

Moreover, welfare standards are not likely to maintain public trust if they focus on certain aspects of animal welfare and ignore others. Standards based on natural living criteria are unlikely to satisfy the public in the long term unless they also include adequate protection of basic animal health. Similarly, standards based on biological functioning criteria are not likely to maintain public trust in the long term if they impose severe restriction of movement. Perhaps no welfare assurance system will stand up to public scrutiny unless it takes the different conceptions of animal welfare into account to some degree.

Finally, animal health and food safety considerations must be part of any animal welfare assurance system. Public perceptions of animal production have been shaped in part by widely read but unsophisticated critiques claiming that more natural rearing systems would provide improvements in animal welfare, animal health and food safety. In reality, the connection among these issues is not straightforward, and standards need to ensure that basic animal health and food safety are not jeopardized by an emphasis on other aspects of animal welfare. For instance, with organic standards, where restrictions on the use of antibiotics could potentially create animal health problems, it will be important to include protocols for disease prevention and for the treatment of animals that become diseased. For systems that eliminate close confinement and individual housing of animals, management protocols and/or performance standards will be needed to prevent aggression and injury. Given the need for animal health and food safety to be an integral part of animal welfare standards, it will be important for animal hygiene experts to have a significant voice in the process. Only with careful attention to matters of animal health and food safety will the emerging trend toward animal welfare standards maintain the trust of the public.

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Summary

During recent decades, the developed countries have seen: (1) the emergence of intensive animal production with strong emphasis on production efficiency; (2) a major increase in humanitarian attitudes toward animals, and (3) a degree of public backlash against technology and large corporations intruding into the processes of nature.

These trends have contributed to, or at least reinforced, three different interpretations of how animals should be raised and how animal welfare should be assessed:

- (1) that animals should be allowed to *function well* in the sense of good health, rapid growth and reproduction. This “biological functioning” view is held especially by intensive animal producers, veterinarians and some animal scientists;
- (2) that animals should be allowed to *lead natural lives* by carrying out their normal behaviour in a reasonably natural environment. This “natural living” view is common among consumers and many social critics of modern animal production.
- (3) that animals should be allowed to *feel well* by being spared unnecessary fear, pain, hunger and other unpleasant affective states. This “affective states” view is common in humanitarian thinking and among some animal welfare scientists.

Each of these views is supported by certain scientists. Scientific analysis can help clarify the strengths and weaknesses of these different approaches, but cannot resolve the different philosophical, value-dependent views that underlie them.

Each of these viewpoints has influenced animal welfare standards that are currently being implemented. Standards being implemented by the retail and food service sectors in the US tend to reflect biological functioning criteria, generally specifying space allowances, air quality, and other factors based on health, growth and production parameters. Organic and other alternative production standards are based more on a natural living approach, requiring animals to be raised partly outdoors without close confinement. Other standards -- such as those for humane slaughter -- are based more on affective states, requiring that fear, pain and distress be minimized.

The rapid introduction of different standards, all claiming to assure animal welfare, is likely to confuse and disillusion consumers. To avoid this, the underlying criteria of animal welfare standards needs to be specified, and standards will need to make reasonable trade-offs among the different criteria, not (for example) favoring natural living criteria without regard for health, or biological functioning criteria without regard for freedom of movement. In order for any standard to meet public expectations, food safety considerations need to be major considerations. For these various reasons, animal health and hygiene needs to be an integral part of animal welfare standards.

Moreover, these claims tend to put the scientific cart before the ethical horse. The scientific study of animal welfare arose in order to provide an empirical basis for addressing ethical concerns about the quality of life of animals. Those concerns include all three of the approaches described above. Hence when scientists try to limit the conception of welfare to one or other of the concerns, they run the risk of making the science irrelevant to its original goal.