The Science and Politics of Animal Welfare

by Stanley E. Curtis and Harold D. Guither

Are today's intensive systems of animal production basically inhumane? This question is central to the farm animal welfare issue, which has been developing in the United States for several years. Opinions vary across a broad spectrum.

Competing Views

According to the anthropomorphic view, animals have the same perceptions as humans and thus ought to be treated like them. Ethical vegetarians believe we have no right to slaughter livestock or poultry for human consumption. A more widely held position is that we should respect the animals we use and should not subject them to distress resulting from normal production practices. Many animal welfarists and agriculturists find common ground in this position.

Most states have laws protecting domestic animals from neglect and abuse, but debate still continues on another form of alleged cruelty to animals: depriving them of the opportunity to express supposedly necessary behaviors. Especially controversial are the practices of keeping laying hens in cages, gestating sows in stalls and veal calves in crates.

Some critics point out that common behaviors expressed frequently in natural surroundings are seldom observed in certain artificial environments and that this modification is a sign of undue stress on animals in unnatural surroundings. A counter-claim is that such differences in behavioral responses to the environment are to be expected, because behavioral triggers vary from one environment to another.

Attention of the general public was first drawn to the welfare of food animals in 1964 with the publication in England of Ruth Harrison's book, *Animal Machines.* In the wake of public interest generated by the book, the British government appointed a committee that prepared a report on intensive animal production systems. The report questioned the humaneness of several common husbandry practices.

Since then, the debate over farm animal welfare has spread all over Western Europe, the United States and Canada, as well as Australia and New Zealand. Conflict has arisen because livestock, poultry and even grain producers feel economically threatened by some of the policies and regulations proposed by animal welfare groups, whose views are based on ethical judgments rather than on scientific evidence or economic feasibility.

The extent to which a society uses animals for companionship, recreation, power and food are ethical decisions that are heavily influenced by social and religious traditions. Like other public policy matters, these decisions should be made by our political system, not by any one sector with strong opinions or interests. Such public decisions can be made wisely only after all the facts and consequences of proposed policies and regulations have been fully explored and analyzed.

Researchers can contribute to discussions of animal welfare by producing scientific evidence on the relationship between animals and their environments. Gaps in our knowledge lie primarily in the areas of perception and stress, and many investigations are now being focused on these two areas.

Perception

Perception is an animal's immediate discriminatory response to energy-activated sense organs. Relative to human experience, what do we know quantitatively about a farm animal's conscious perceptions of comfort and discomfort, pleasure and displeasure, or pain and its absence? The answer is simple: little or nothing if purely anthropomorphic musings be ignored, as they must be.

We should also recognize that the design of accommodations for humans, about whom much more is known in this respect, is still hampered by a paucity of quantitative data and by the practical impossibility of meeting the needs of an organism so precisely over time that it will never experience discomfort.

Added to this difficulty is the complicating fact that people differ greatly in their perceptions of comfort. One architect has suggested that, as a practical matter, even facilities for humans cannot be designed to achieve a comfort zone. Rather, a "lack of discomfort" zone is the best that can be hoped for.

Stress

We know more about stress and its consequences than about perception in farm animals. An animal is under stress when it must make extreme functional, structural or behavioral adjustments in order to cope with adverse aspects of its environment. An environmental complex is therefore stressful only if it makes extreme demands on an animal.

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Interpretation of stress parameters and indices is the real challenge. We must continue to learn more and endeavor to apply effectively what is already known so that we can increase the fit between agricultural animals and their environments.

It is an unusual moment when any animal, wild or domestic, is not responding to several stressors at once. Stress is the rule, not the exception, but nature has endowed animals with a marvelous array of reactions to stressful situations.

The amount of stress an animal is under depends not only on the intensity and duration of a noxious agent, but on the animal's ability to modify its own perceptions and the effects of the stressor as well. There is increasing evidence that the feelings of animals depend to some extent on the predictability of the environment and their ability to control it. When an animal's needs are being fulfilled or it is able to control its surroundings, it feels more comfortable even if responding to stressors. According to this theory, the animal feels uncomfortable or even distressed when it can not predict or control its environment.

Another theory holds that the perceived intensity of stress depends on the context within which the stressful situation occurs. A human whose body temperature is below normal usually finds cold stimuli unpleasant and hot pleasant. Extrapolating to agricultural animals, perhaps stress of one sort actually primes an animal to receive pleasure from some other stressful aspect of its environment. A cool night might prepare the animal to find comfort in a hot summer afternoon.

Scientists still do not fully understand how findings such as these relate to an animal's welfare, health and productivity. But we do know that we cannot rely solely on physiological or behavioral traits to indicate the amount of stress an animal actually perceives, let alone how these might be related to its welfare.

Performance

Performance, as well as physiology and behavior, must be looked at in relation to the welfare issue. Stress provokes an animal to react in some way. This reaction in turn can influence the partition of resources among reproductive, productive and maintenance functions in several ways. The reaction might (1) alter internal functions involved in economically important processes as well as reactions to stressors, (2) divert nutrients from productive or reproductive processes to maintenance processes, (3) reduce productivity directly, (4) increase individual variability in performance, or (5) impair disease resistance.

Still, it would be unrealistic to leave the impression that the links between stresses and productive and reproductive processes are clear and simple. Consider three examples:

- Lactating cows can be under severe heat stress each afternoon, but as long as adequate feed is available, they might not suffer any reduction in milk yield.

• Animals kept in relatively barren environments where specific social or physical stimuli are absent sometimes grow faster than their counterparts in more enriched surroundings.

• In individual hens, the correlation between signs of physical and social trauma and egg yield is not always clear.

The situation is a complicated one that needs further scientific investigation before we can strike the correct balance between food animals and their environments for optimizing their welfare, health and performance.

Public Policy

As a result of public pressure, funds have been allocated in many countries of Western Europe for additional research on intensive production systems for laying hens, veal calves and swine and on their responses to various stressors. Governmental officials in most countries are sympathetic to the economic hardships that animal welfare regulations impose on farmers. Lawmakers are especially reluctant to enact legislation that might put their nation's farmers at a competitive disadvantage with producers in other countries. Unfortunately, public pressure for governmental action has sometimes been so strong that political decisions were made before scientific evidence was available to support them.

Animal welfare laws and regulations have already been established as part of public policy in several European nations. Through government appointed committees animal welfarists, scientists and producers have been brought together to air their views. Hearings of this nature are the first phase in calling the animal welfare issue to the attention of the public so that people can participate intelligently in the policymaking process.

When an appointed committee issues its report, the views and proposals provide the basis for news media attention and broad public awareness. Several reports have provided a reference base for public discussion of animal welfare issues: "Report of the Technical Committee to Enquire into the Welfare of Animals Kept under Intensive Livestock Husbandry Systems," United Kingdom, 1965; the National Council for Agricultural Research Committee of Experts' "Report on Animal Husbandry and Welfare," The Netherlands, 1975; the Council of Europe's "European Convention for the Protection of Animals Kept for Farming Purposes," 1976; and the House of Commons Agriculture Committee's report, "Animal Welfare in Poultry, Pig and Veal Calf Production," United Kingdom, 1981.

The public may not realize that these reports do not necessarily represent a majority of public opinion. They are simply the reference base upon which further discussion and debate will be carried out before final policy decisions are made.

Once decisions have been reached, governmental agencies are established to oversee the new laws and regulations. In some European countries, regulations have dealt with practices that progressive producers would have applied anyway in their livestock and poultry operations. Of course, with a regulation in place, producers no longer have a legal choice in the matter.

A joint resolution introduced into the Congress by Congressman Ronald Mottl of Ohio in 1981 called for the creation of a 16-member committee to study animal production practices in this country. Those concerned with current practices viewed this legislative approach as a means of promoting further discussion of animal welfare and broadening public awareness of the issue.

Producer groups generally felt that no such discussion or study was needed. They believed they were already using the latest production methods that scientific research and practical experience had to offer for the most efficient and profitable production of food. Although no hearings on this resolution were scheduled for 1982, the idea of a commission to study animal welfare issues in the United States probably will continue to be the goal of some animal welfare organizations for a long time.

The experience of Europeans with animal welfare policies and practices suggests that policymakers in the United States should weigh scientific evidence carefully. Without doubt, we will benefit from public discussion of the issues, including those ramifications that impinge on the food distribution and pricing systems. Before attempting to set up legislation, however, we need to be well informed about the consequences of regulations on livestock and poultry production. AJ