

# Farm Animal Welfare in a World of Changing Expectations

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## ■ Take Home Message

Cultural attitudes toward animals have been changing rapidly during the past 50 years. These changes have culminated in some remarkable and very recent developments in farm animal welfare. In the United States, guidelines and audit procedures, designed to assure consumers that animal welfare standards are being met, are currently being introduced by chain restaurants and other major players in the food industry. The European Union has agreed to implement major changes in production methods including phasing out the battery cage for laying hens and the gestation stall for pregnant sows. To prepare for such changes, the animal industries need certain services and resources to be in place:

- research, development and expertise to ensure that acceptable methods are accessible and well tested,
- economic conditions that favor the timely adoption of such methods,
- a regulatory environment adequate to encourage appropriate changes and to assure the public that key concerns are being met, and
- organizational leadership and infrastructure to help the animal industries anticipate and prepare for emerging issues.

The animal industries need to act promptly to ensure that these services are in place, in order to promote a smooth transition to production standards and methods that will meet changing expectations.

## ■ A Changing Culture

In the 1960s a stunning new exhibit made its debut at the Vancouver Aquarium. The Aquarium staff had discovered, partly by accident, that killer whales could

be captured alive and kept in a large public-viewing pool where they quickly became the Aquarium's star attraction. In 2001, however, after much debate the Aquarium decided that it would no longer keep these active, highly social animals under such conditions, and the one remaining whale was transported to San Diego where she would at least have more space and the company of other whales. All this occurred during a provincial election in British Columbia, and the whale received about as much media attention, and certainly more sympathetic public interest, than any of the political parties.

This is just one instance out of hundreds we could cite to illustrate the tremendous public interest that has arisen over animals and their well-being during the past 50 years. The change has touched virtually every aspect of animal use:

- When I was growing up on a small Canadian farm in the 1950s, tax money was paid as bounties to encourage people to kill wolves as a public service; today, tax money is being paid to protect wolves and re-establish them in areas where my contemporaries had exterminated them.
- In the 1950s scientists considered it acceptable to shoot a mother chimpanzee in Africa, bring her baby to North America, raise it in a steel cage, and then use it as a living test-crash dummy in vehicle safety research; today there is an international movement to ban all use of chimpanzees in harmful research, with New Zealand, the United Kingdom (UK) and the Netherlands now having taken that step.
- In the 1960s animal agriculture began a massive move toward the use of cages for laying hens and gestation stalls for pregnant sows; in 1999-2001, senior officials of 15 countries drafted directives that will ban the use of these housing systems in the European Union (EU) effective from 2012.

In these examples we see a profound change in public attitudes and values regarding animals, to the point that practices which seemed perfectly acceptable — even modern and progressive — just a few decades ago are now becoming farther and farther removed from what the public sees as acceptable treatment of animals. These changes in public values have been influencing animal agriculture for many years. In the 1950s and 1960s there was great public attention to humane slaughter, and a number of countries created humane slaughter legislation. In the 1960s, attention tended to shift to humane trucking, and certain countries created legislation to protect animals during transport. The 1960s and 1970s saw the start of protest over on-farm production methods in books such as Ruth Harrison's *Animal Machines* (1964) and Peter Singer's *Animal Liberation* (1975). In this case, however, there were no simple solutions. Some of the most controversial methods — such as veal calf crates and battery cages — were also the most economical, and it was not clear that alternative systems were better for the animals. Hence, during the 1970s and 1980s, society seemed to experiment with different ways of

responding to these concerns. Committees were formed; conferences were held; codes of practice were written in many countries, and a few countries begun to regulate certain aspects of animal housing. For the most part, however, the controversial production systems remained intact.

## ■ A New Phase Of Change

In the last three years, however, I sense that we are entering a new phase when animal agriculture in many countries is suddenly embarking on major changes (Table 1). In 1999 a ban on gestation stalls for sows came into effect in the UK, followed, six months later, by an EU directive to phase out the standard battery cage within 12 years. In 2000, McDonald=s Restaurants announced animal welfare standards that their suppliers in the United States (US) would have to meet by specific dates; and Europe and Japan proposed that animal welfare standards be included in international trade agreements. In 2001, Burger King Corporation announced animal welfare standards that would be required by its suppliers, initially in the US; and the EU passed a directive to phase out the gestation stall throughout its member countries by 2012. Thus, in the past three years we have seen a new will to change and new agents of change that were not visible just a few years earlier.

**Table 1. Key developments 1999-2001**

Year	Development
1999	UK ban on sow stalls
1999	EU agreement to phase out battery cages by 2012
2000	McDonald=s US announces animal welfare standards
2000	Europe and Japan propose including animal welfare standards in trade agreements
2001	Burger King Corporation announces animal welfare standards
2001	EU agreement to phase out sow gestation stalls by 2012

Although the legislative moves in Europe had been growing for some years, the involvement of the chain restaurants occurred more suddenly. During the 1990s McDonald=s in the UK had brought a suit for libel against two activists who had distributed pamphlets accusing McDonald=s of causing various social problems including destruction of tropical rain forest, exploitation of workers, and cruelty

to animals. The judge, after hearing extensive testimony, ruled in 1997 that many of the activists' allegations were indeed unwarranted. On the other hand, he concluded that the activists were right in claiming that cruelty to animals is inherent in certain animal production practices, notably in the restriction of movement of laying hens and pregnant sows; and he ruled that McDonald's was "culpably responsible" for that cruelty in cases where it had close links with its supply chain. Within two years, McDonald's advised its US suppliers in the slaughter and egg industries — two areas where the company has close relations with suppliers — that it would require certain animal welfare standards to be met by certain dates. Most notably, slaughter plants were required to meet the standards of the American Meat Institute; laying hens must have 72 square inches of floor space per bird; and forced molting by food withdrawal must not be practiced by the company's primary suppliers of eggs.

The standards announced in June, 2001, by Burger King (Table 2) contain similar elements, but are more detailed in some respects and touch on additional segments of animal agriculture. Burger King did not give specific standards for dairy facilities, but noted that it will "monitor developments in the areas of genetics, thermal comfort of animals, air quality of animals in enclosed environments, emergency procedures for failure of automated systems used in the production of food animals, on-farm euthanasia methods and improving the manner by which animals are transported. The company will encourage the adoption of appropriate, science-based improvements in any of these areas if they promise to result in more humane conditions for food animals." Moreover, as an international corporation, Burger King announced that although it would apply the standards initially in the US where the majority of its restaurants are located, it intended to introduce comparable standards in other countries in a timely manner.

**Table 2. Selected features of Burger King Corporation's Animal Handling Guidelines and Audits (June 2001)**

<p><b>Laying hens</b></p> <ul style="list-style-type: none"> <li>▸ 75 square inches (484 sq cm) of floor space per bird</li> <li>▸ cage height must allow birds to stand upright throughout cage</li> <li>▸ two drinkers per cage</li> <li>▸ no forced molting by feed/water withdrawal</li> <li>▸ average ammonia not &gt;25 ppm for any 7 days</li> <li>▸ no beak-trimming after 10 days</li> </ul>
<p><b>Cattle</b></p> <ul style="list-style-type: none"> <li>▸ no repeat branding, no facial branding</li> <li>▸ dehorning and castration must be healed before transport to feedlot</li> <li>▸ slaughter plants must not use or actively procure downers, emaciated cattle, or animals with advanced cancer eye.</li> </ul>
<p><b>Swine</b></p> <ul style="list-style-type: none"> <li>▸ Burger King will identify and study units using alternatives to gestation stalls and begin purchasing from producers using alternatives</li> </ul>

With the largest chain restaurants in the US now requiring that animal welfare standards be met, the trend seems almost certain to spread to other players in the food industry. However, if each company were to produce its own standards and audit procedures, the result would be confusing for consumers and cumbersome for suppliers. Consequently, a set of harmonized standards is currently being developed by two food industry associations. One of these is the National Council of Chain Restaurants, a Washington-based association of chain restaurants which includes McDonald's and Burger King. The other is the Food Marketing Institute, a Washington-based association of grocery distributors whose member companies are active in 60 countries and have gross annual sales totaling \$340 billion. In 2001 these two organizations agreed to work together to produce a set of uniform animal welfare standards which their member companies may choose to adopt.

In these various developments we can identify two key trends. One, not surprisingly, is a move to replace controversial housing and management practices, especially those that involve:

- severe restriction of movement,
- physical and behavioral abnormalities, and

- pain, hunger or other negative states.

The second trend is not to produce comprehensive codes of practice, but rather, a set of clear, simple standards that can be measured and audited. As an example, Table 3 shows the American Meat Institute's audit points for hog slaughter which have been adopted by both McDonald's and Burger King. These are, in effect, a list of critical control points that can be scored quantitatively by a trained auditor during a few hours in the plant.

**Table 3. American Meat Institute Audit Standards for Cattle**

Criterion	Required Standard
Percentage of animals slipping in the facility	3% or less
Percentage of animals falling in the facility	1% or less
Percentage of animals vocalizing during handling and stunning	3% or less
Percentage of animals prodded with electric prod	25% or less
Percentage of animals stunned correctly on first shot	95% or more
Proportion of animals insensible on the bleed rail	499/500 or more
Starting slaughter procedure on animals showing any sign of sensibility	zero
Dragging of sensible non-ambulatory animals	zero

Adapted from: <http://www.grandin.com/pig.audit.form.html>

It is too soon to predict how deeply these developments will affect animal agriculture, but early evidence suggests that the changes will be substantial. For many years Temple Grandin has been monitoring the performance of slaughter plants in the US and Canada. Table 4 shows her findings for one of the performance criteria, namely the number of plants achieving first-shot stunning for 95% of the cattle processed. In 1996, Grandin found that of 10 government-inspection US plants studied, only 3 (30%) met this standard. Three years later, when McDonald=s began to audit US plants, Grandin reported a dramatic improvement to 74%, and a further improvement to 90% in 2000. These figures can be compared to about 60-80% in Canada during 1993-99; the values suggest that standards were better in Canada under government inspection but not since McDonald=s began its audits.

**Table 4. Percentage of cattle plants achieving first shot stunning for 95% or more of animals**

Year	Percent	Inspection Agency	Plants Tested
United States Plants			
1996	30%	Government	10
1999	74%	McDonald's	19
2000	90%	McDonald's	49
Canadian Plants			
1993	83%	Government	6
1995	80%	Government	5
1999	60%	Government	5

Adapted from T. Grandin:

<http://www.grandin.com/survey/canada.audit.html>

<http://www.grandin.com/survey/2000McDonalds.rpt.html>

## ■ How Should The Animal Industries Respond?

How the animal industries can and should respond to these new expectations will vary from industry to industry and from country to country. In the US, the sheer size of some suppliers has made it relatively easy to implement standards. A large chain restaurant might, for example, purchase its eggs or chicken from only one or two major suppliers and thus be able to negotiate a change in production standards with little difficulty. In the EU, although animal agriculture is less centralized, national governments and EU authorities have devoted public resources to inspection programs to ensure that standards are followed.

In much of the world, however, animal agriculture remains a very decentralized industry, lacking any strong coordination by government or other agencies to help implement change and guarantee standards. In such cases, for animal agriculture to respond to changing expectations will require decisions and actions by thousands of independent producers. Hence, industry leaders, no matter how far-sighted, may find it difficult to re-position animal agriculture to respond to changing expectations.

Fortunately, however, there are some key steps that can assist with this challenge. If producers are to shift toward alternative methods and guaranteed standards, they need four important services and resources to be in place:

- research, development and expertise to provide appropriate technology and the information necessary to adopt it successfully,
- economic conditions that make it profitable to adopt appropriate technology,

- ▶ a regulatory environment that encourages change and assures the public that key concerns are being met, and
- ▶ leadership from industrial, professional and governmental bodies to anticipate emerging issues and help the animal industries position themselves accordingly.

By putting these services and resources in place, industry leaders, professionals and government can create an environment where producers are more likely to make changes that will help the industry meet the expectations of the public and requirements of corporate customers. Let us now look at these four elements.

## ■ **Research, Development and Expertise**

Supplying the right research, development and expertise requires activity on four levels.

### **Basic Research.**

In some cases, there is a need for basic research to identify the welfare requirements of animals. To use an example from the egg industry, when strong pressure developed in Europe to do away with the battery cage for hens, the EU seemed on the verge of creating a ban that would have left non-cage systems, such as aviaries and free range, as the only options available to producers. However, research had shown that there are certain key features important to the hen's welfare:

- ▶ a modest space allowance,
- ▶ a perch, which helps prevent leg bone deterioration,
- ▶ a nest box where a hen can retreat to lay, and
- ▶ access to litter for feather care.

Moreover, research had shown that these features can be provided in an "enriched" cage, sized for small groups of birds. On the basis of that research, the EU recognized the enriched cage as a suitable alternative to replace the standard cage when the ban comes into effect. Had the basic research not been done, the industry would have found the move away from the standard cage much more difficult to achieve.



### **Technology Development.**

In other cases, the welfare requirements may be clear, but development is needed to provide technology to better meet the requirements. Referring to the dairy industry (and using the three problem areas identified above), we might ask the following.

- To avoid severe restriction of movement, do we have enough development work on alternatives to individual stalls and hutches for dairy calves so that producers could make a successful transition to less restrictive or group housing?
- To avoid physical and behavioral abnormalities, do we know how to effectively eliminate lameness and metabolic diseases in the high-yielding dairy cow?
- To avoid pain, hunger and other negative states, do we have enough R&D to provide effective on-farm methods of eliminating the pain of dehorning?

These have been acknowledged animal welfare concerns of the dairy industry for many years. If we still do not have adequate methods to deal with them, then R&D may well be a limiting factor.

### **Commercial Testing and Expertise.**

Finally, even if the research and development have been adequate, producers may still need access to information on how a technology performs under a range of commercial conditions, and to expertise to support them in adopting the technology. Robotic milking of dairy cows illustrates a technology that has been adopted much more rapidly in some countries than in others. In Denmark, the dairy industry built a commercial-scale robotic milking unit on the grounds of the Danish Institute of Agricultural Sciences, thus allowing both scientists and producers to gain first-hand knowledge of the technology under commercial conditions. With this knowledge and expertise at hand, Denmark became a rapid adopter of robotic milking, with 120 farms installing the technology during a period of two years. If such commercial-scale testing and expertise are not available, producers are forced to take greater risks in adopting new methods.

In summary, producers need services at four levels from the R&D sector: basic research on the welfare needs of animals, technology development to meet these needs, commercial testing of the technology, and access to expertise to help with its implementation. If any of these is missing, it may be difficult for producers to make changes in production methods that would respond to changing expectations.

## ■ Economic Conditions

In order to phase in new methods or standards, producers need favorable economic conditions, including incentives that encourage change and the elimination of economic barriers that prevent change.

Many of the problems that give rise to animal welfare concerns result at some level from low profits in animal production. A century ago animal products, being highly perishable, tended to be produced and consumed locally. With the advent of refrigeration, fast freezing, and other means of product preservation, it became possible to sell meat, milk, and eggs into larger and larger markets — regional, national, and international. As this technology developed and larger distribution systems were created, producers found themselves competing against much larger numbers of other producers, some of them in different parts of the world. The resulting price competition pushed profits to low levels. In some respects this may have had beneficial effects on animal welfare, as it encouraged producers to eliminate losses from death and disease. However, it also put major constraints on animal production methods. With low profit per animal, producers could not afford to provide space, staff time, bedding and other amenities beyond the level that would enhance productivity in a cost-effective way. In fact, many of the animal welfare problems commonly attributed to confinement technology are perhaps more accurately seen as problems of price competition. By itself, the use of raised cages for small groups of hens may be a defensible means of improving hygiene and preventing social stress, but crowding many hens into a small, featureless cage is a decision based on economics. By itself, the practice of penning sows individually during pregnancy may be a reasonable way to promote healthy food intake and prevent aggression, but restricting the space allowance to a narrow, unbedded stall is a matter of economics. A key issue, therefore, is how to prevent profits from becoming or remaining so low that producers are forced to cut costs in ways that create real or perceived animal welfare problems.

### **Customized Versus Commodity Production.**

One partial solution is to move from "commodity production" to "customized production" — in other words, to sell animal products more in the manner of cars than of gasoline. Gasoline is sold as a commodity, and despite attempts by distributors to generate brand loyalty, many consumers tolerate very little price differential between one brand and another. For products sold as commodities, the harsh rule of economics is that profits will be driven lower and lower, until it becomes unprofitable for new producers with average efficiency to enter the market. Cars, on the other hand, are more customized; there is a market for products throughout a wide range of prices because the different products are perceived as differing in important ways. Customized production thus allows

producers to sell to a specific segment of the market, and the price relative to a baseline commodity price is less an issue.

We are currently seeing a proliferation of customized production programs intended to assure customers of animal welfare standards and to reward producers for following such standards. In some cases, the incentive for producers is to obtain premium prices for their products. For example, in the UK Freedom Foods program, created in 1994 by the Royal Society for the Prevention of Cruelty to Animals, producers are certified as meeting certain animal welfare standards and can then sell under the Freedom Foods label at premium prices. The system was initially viewed with suspicion by the animal industries, but from 1994 to 2001, the number of producers in the program increased to over 3000, the number of retail stores carrying the products increased to over 6000, and as one example of the sales volume, egg sales had reached 82 million per month by 2001. If there is any threat to the program it is its own success, partly because so many producers have joined that the price premiums have been reduced, and partly because there has been a proliferation of other programs vying for the same segment of the market.

In some cases, animal producers themselves have created customized systems based on animal welfare standards as a means of retaining market share. When Austria entered the EU, there were fears that its relatively small-scale animal production would be eliminated by competition from much larger, more industrialized production in countries such as France and the Netherlands. At the same time, Austrian animal producers sensed that many consumers wanted to continue buying from Austrian farms because of concerns about animal welfare and disease problems in other countries. The producers therefore created a labeling and traceability system to certify that meat had been produced according to a combination of animal welfare, health and organic standards.

In some cases, large food processing companies have insisted that their suppliers follow customized production systems to allow the company to assure their own retail customers of the welfare standards used in making their products. Long Closhan is a large producer and exporter of quality cheese in the UK. Seeing animal welfare as a potential consumer issue, it encouraged its milk producers to join the Freedom Foods program, and over some years it dropped certain farms from their supplier list and added others so that they would have 100% certified and would then be able to use the Freedom Foods label to assure customers that their cheese came from cows treated according to certain standards.

North America is currently seeing a number of customized production programs, some started by humane organizations, some by individual producers, and some by producer organizations, all with somewhat different standards and all in very early stages of market penetration. There is a danger

that the proliferation of programs could confuse consumers, but with the right leadership, coordination and credibility, customized programs might provide producers with an opportunity to meet the concerns of certain consumers.

### **Incentives.**

Despite their merits, customized production programs do not provide a complete response to the changing expectations of farm animal care. In addition, there is a need for programs that will assure consumers and citizens that appropriate standards are in place throughout animal agriculture.

In a decentralized industry, perhaps the most powerful way to encourage such widespread change is through financial incentives. In the 1990s, for example, a number of European countries decided, mainly for environmental reasons, to promote a change from conventional to organic agriculture, and incentive programs were created to compensate farmers for the cost of conversion. Figures from Sweden show a sudden increase in organic acreage beginning in 1989 with the first incentive program, and a second rapid increase in 1995 when Sweden joined the EU and Swedish producers became eligible for EU subsidies. As a result of these programs, about 6% of agricultural land in Sweden was under certified organic cultivation by 2000 and the figure was increasing rapidly. The example illustrates the power of an incentive program to bring about changes in a highly decentralized industry.

Could animal agriculture develop an industry-wide incentive program to encourage producers to phase out controversial practices in favor of methods that make a better fit to changing public expectations? Such programs are most likely to begin in Europe where the EU has already asked the World Trade Organization to approve subsidies that assist producers to comply with animal welfare standards. If this happens, it may be important for producers elsewhere to have access to similar programs.

### **Smaller Scale Incentives.**

Finally, there may be opportunities to create smaller-scale economic incentives to target specific animal welfare concerns. Since 1973, pig producers in Alberta have maintained their own insurance program against death of pigs during road transportation. Experience showed that the risk of death is more related to human factors than to the distance traveled. The plan, therefore, uses a single premium per animal, but the premium quadruples if a producer has a recent history of multiple claims. This strongly encourages producers to avoid shipping animals that are unfit to travel, and to use only truckers with a record of very low losses. The plan is credited with minimizing in-transit losses as well as providing a large cost saving to producers. There may be many other opportunities to develop win-win incentives that would help to save money and eliminate animal welfare problems.

## ■ Regulatory Environment

The regulatory environment is a two-edged sword. If well conceived and well implemented, regulations are probably the most powerful way to assure the public that standards are in place. If poorly conceived, however, regulations can create inefficiencies without solving the problems they were intended to address. The challenge is to steer a course between clumsy and excessive regulation on the one hand, and inadequate regulation on the other.

As an example of clumsy regulation, when faced with mounting public pressure over veal calf production, the UK banned the narrow veal calf crate in 1988. The intention, of course, was that British calves would be produced in less restrictive environments. However, there was an existing export trade of young calves from Britain to farms on the European continent where the animals were raised in crates, and this trade continued after crates were banned in Britain. Moreover, because of trade regulations, Britain could not prevent meat from these calves being shipped back to consumers in the UK. Hence, the legislation did not prevent British calves from being raised in crates; instead, it tended to reinforce a system whereby crate rearing was compounded by the stress of long-distance transport.

At the other extreme, the handling of animals at US slaughter plants provides an example of an inadequate regulatory environment. The US does not have national regulations covering the trucking of animals to slaughter plants; its Humane Slaughter Act does not cover poultry and kosher slaughter; and there has been dissatisfaction with enforcement of the Act by government inspectors. The major chain restaurants evidently felt that this regulatory environment did not provide adequate assurance that animal welfare concerns were being met, and they created their own inspection procedures. The resulting system is unduly cumbersome because food suppliers are now audited by government inspectors according to legal regulations, and by various corporate customers according to their own audit processes. The system is also costly because the chain restaurants are, in effect, paying twice for the same service. If the regulations and enforcement had been more adequate, there would be no need for private companies to duplicate the efforts of government and their competitors. In fact, Burger King, when announcing their standards, also publicly petitioned the US Department of Agriculture to properly enforce the Humane Slaughter Act.

In general, the animal industries have tended to resist regulatory limitations, evidently out of an understandable fear of clumsy or excessive regulation. In some cases, however, a stronger regulatory environment, created with industry involvement, could be a powerful means to help animal agriculture improve its standards and credibility.

## ■ Leadership and Infrastructure

In an industry with centralized leadership, the executive officers try to anticipate future developments and to position the industry to meet emerging needs and opportunities. In an industry such as animal agriculture, where there is often little centralized leadership, some form of organization and infrastructure needs to be created to fill this role.

In many countries, government has created this type of support for the industry. A good example is New Zealand where there is strong public attention to animal welfare combined with an economic need to maintain export markets for agricultural products. The national government responded to these needs by creating a National Animal Welfare Advisory Committee in 1989. The committee consists of representatives of national agricultural, veterinary, scientific, consumer, and humane organizations, and it advises the New Zealand government on all aspects of animal welfare including research needs, codes of practice, and regulatory requirements. The Advisory Committee is supported by an Animal Welfare Group, consisting of a director and six staff, within the New Zealand government. The Group develops and promotes animal welfare standards, ensures that enforcement is adequate, keeps abreast of international developments, and works to bring about an objective resolution of animal welfare problems. Thus, with a human population of only 3.6 million, the New Zealand government has invested heavily in infrastructure and staff to provide leadership on animal welfare, and has thus helped put its animal industries at the forefront in responding to animal welfare concerns.

The Canadian province of Alberta provides a different model where government, industry and the humane movement have mounted a joint response to public concerns over farm animal welfare. In Alberta the provincial government includes an Animal Welfare Branch whose staff promote humane care and responsible use of animals, especially by encouraging research and technology transfer. In the private sector, the different animal producer organizations have created the Alberta Farm Animal Care Association (AFAC) which promotes humane care of farm animals, provides a producer voice to government and the public on farm animal issues, and encourages relevant research. The provincial government and AFAC also entered into a three-way partnership with the Alberta Society for the Prevention of Cruelty to Animals to create the Alberta Livestock Protection System, funded largely by the provincial government, which provides a coordinated system involving animal protection workers, government specialists and producers who cooperatively inspect, enforce and educate in the area of animal welfare.

## ■ Conclusion: Toward a Strategy for Change

In responding to the challenge facing animal agriculture, it helps to think of change occurring at three levels (Figure 1). The most general level involves the cultural values and attitudes toward animals which have been changing rapidly over the past 50 years. The most specific level involves the actual animal management practices used in animal production, transport and slaughter. When change occurs at the level of cultural values and attitudes, people expect change to occur also at the level of animal management practices, and if these changes do not occur in a timely way, then we see dissatisfaction, negative media attention, protest, calls for legislation, and so on. In a decentralized industry like animal agriculture, there are obstacles that make it difficult for animal management practices to change. To overcome these obstacles requires the services and resources described above: research, development and expertise; favorable economic conditions; a favorable regulatory environment; and appropriate leadership and infrastructure. However, these services and resources cannot normally be created at the level of the individual farm; rather, they happen at an intermediate level – regional, national, international, or industry-wide. Hence, producers need the support of the R&D sector, governments, industry associations, and related professions to help create the middle-level services and resources that will allow animal management practices to change in step with public values. A key question, therefore, is whether the necessary services and resources are in place.

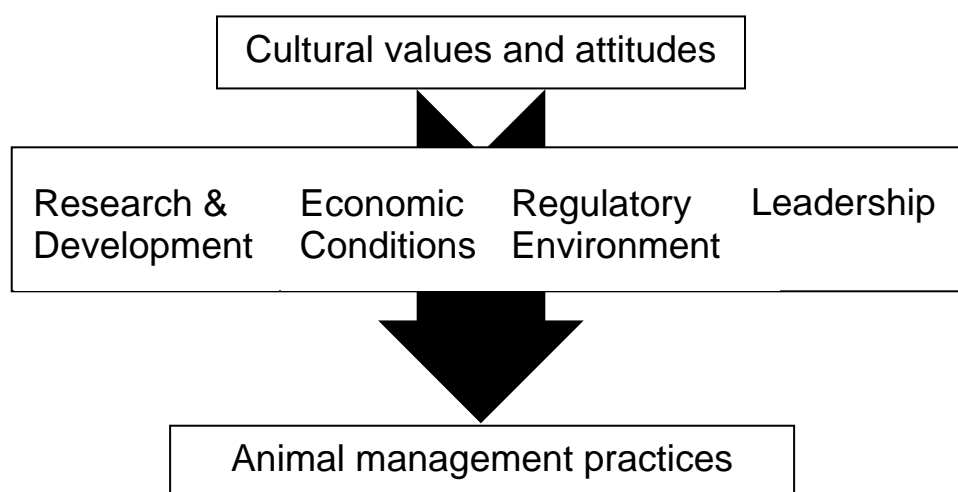


Figure 1. Three levels of change

The answer to this question will be somewhat different for each segment of animal agriculture. The following series of questions provides a framework that could help an industry assess its individual situation and needs.

First, what are the key animal welfare issues facing the industry? Areas of concern may include: housing practices that involve severe restriction of movement; environments that lead to physical or behavioral abnormalities; and infliction of pain, hunger or other forms of distress. Could some of the concerns be met by replacing certain housing, handling and production practices? Could some be met by creating clear standards and means of assuring the public that the standards are being followed?

Second, is there a need for additional research, development or expertise to put new practices or standards into place? This may include: basic research on welfare requirements; development of new technology to meet these requirements; commercial-scale testing of the technology; and expertise to help producers to adopt new methods successfully.

Third, is the economic climate conducive to the kind of changes the industry needs? Could customized production systems help meet the concerns of certain customers, perhaps while compensating producers for the cost of using alternative methods? Would it be possible to create incentive programs that would move the industry in certain directions?

Fourth, are existing regulations and enforcement adequate to provide farm animals with appropriate protection and to assure the public that such protection is in place? Are there new regulations that would help the industry to improve its standards and eliminate controversial practices?

And finally, does the industry have adequate leadership and infrastructure to help it respond to animal welfare issues in a timely way?

In responding to changing expectations about animal welfare, the dairy industry has certain important advantages. In dairy production, economics and user convenience have shifted the dairy industry toward less restrictive housing of adult animals (free stalls replacing tie stalls), in contrast to the swine and egg industries which moved in the opposite direction. The high economic value of dairy cows has meant that individual care and staff time per animal have not been constrained as severely as in other animal industries. Moreover, in dairy cattle the link between animal comfort and productivity is well enough established that producers show great interest in comfort issues. For these and perhaps other reasons, animal welfare has not attracted as much negative attention in the dairy industry as in the swine and egg industries.

Nonetheless, there are numerous points where the dairy industry is open to criticism. These include:



- ▶ stress to cull dairy cows and unwanted calves during shipping and sale,
- ▶ housing calves in restrictive individual stalls and cubicles,
- ▶ high disease and mortality rates of calves,
- ▶ feeding calves less milk than would support normal growth,
- ▶ dehorning without pain management
- ▶ year-round indoor housing
- ▶ the high incidence of lameness and metabolic disorders leading to high culling rates.

To date, these have not yet become high-profile issues with the concerned public, but they have the potential to do so. By identifying and addressing its animal welfare issues now, the dairy industry could well avoid the pressures faced by other segments of animal agriculture.

