Multi-State Poultry Meeting
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ADDRESSING POULTRY WELFARE: PROACTIVE STRATEGIES AND VOLUNTARY REGULATIONS

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INTRODUCTION

Animal welfare is a controversial topic in modern animal agriculture because of a discrepancy of opinions regarding how animals should be maintained and treated. Opinions range the entire spectrum, and people tend to become very emotional and vocal defending both sides. We need to acknowledge, however, that the majority of the public in developed countries has a more moderate attitude towards welfare.

Part of the controversy over farm animal welfare issues is related to an apparent conflict of interest, as some management practices that increase farm profitability may negatively impact welfare (e.g. increased stocking density). Logically, the industry has been reluctant to address animal welfare issues, fearing that the discussion would trigger a burden of regulation as has happened in Europe where legislation increasing the requirements for the rearing of laying hens was enacted (Council Directive 1999/74/EC; L 203/56). In spite of the industry's concerns, the recent minimum welfare standards imposed by McDonald's (Smith, 2000) to their food suppliers (due mostly to the actions of extremist animal rights movements) has pushed the topic forward more quickly and strongly than any governmental actions. In addition, international pressure to insure animal welfare is increasing, particularly from the European Union (EU), where concern has been expressed, for example, about the impact of feed restriction and partial amputations (viewed as mutilations) on the welfare of broiler breeding stock (European Commission, 2000). These concerns have led the EU to request that animal welfare issues be included in future international trade talks (http://trade-info.cec.eu.int/europa/2001newround/agr.htm). Consequently, animal welfare has jumped to the forefront of the discussion in modern agriculture, and will likely be here to stay.

In the coming years, it is expected that U.S. animal agriculture will have to face the challenge of addressing welfare issues, a new challenge to add to the restrictions and regulations already in place. Many producers fear the economic impact that this may have on their business, and many reasons can be given as to why the industry should not be concerned about the welfare of domestic animals. The primary reason is that producers DO, of course, care about the welfare of their animals. An efficient production system cannot be based in keeping unhealthy, underfed animals. The industry in the U.S. has done an excellent job at improving health and maximizing efficiency, which has resulted in meat and poultry products that are affordable for all sectors of the society. However, welfare comprises many aspects aside from animal health, such as those related to an animal's behavioral needs, pain, fear, and suffering (Broom and Johnson, 1993). These factors have not been previously considered by the industry. At the present time the question is not whether the industry is going to deal with these issues, but how it is going to successfully and efficiently incorporate these new welfare considerations into the production system.

In addition to animal welfare, the current trend in animal agriculture is towards sustainable production systems that minimize environmental impact, reduce pollution and soil erosion, improve the working environment for animal caretakers, and/or minimize

resource utilization while maximizing animal performance. Animal welfare is also considered to be an integrative part of an ideal sustainable system. The impact that these challenges will have on the animal industry will strongly depend on the strategies adopted by each of the companies. Basing management strategies on good **scientific information** and proactive attitudes will be key to successfully passing the test. It will be fundamental to understand, or even to become an "expert" on animal welfare (Steward-Brown, 2001) and to minimize controversy and emotionality when engaged in public discussion.

Dealing with welfare issues

1- Defining and measuring animal welfare

To address welfare issues, the first step is scientific comprehension of the subject, and to understand the limitations that scientists confront. It is not feasible to summarize in this paper the body of scientific knowledge on animal welfare. However, it is of primary importance for the industry to become familiar with the basic concepts in order to understand some of the reasons behind the voluntary recommendations developed by some companies and organizations (e.g. McDonald's, The American Humane Association, or the National Chicken Council).

Animal welfare is a "state" (Broom, 1986) that encompasses many complex aspects of the animals and includes biological, psychological, and ethical components. The biological components can be further divided into physical, physiological and behavioral. Hence, one should take notice that welfare and behavior are not synonymous terms, as is commonly believed. Behavior is merely one of the many aspects to consider when evaluating animal welfare. Most of the physical components of welfare are easy to determine, as it includes parameters traditionally used by the producers to evaluate performance and health (e.g. growth rate, body weight, comb color, and feathering condition). Behavior is frequently (if not always) used by experienced farmers to determine potential problems in animals, although perhaps this behavioral evaluation is done in an "instinctive" manner. For example, farmers can determine if chicks are under an optimal brooding temperature by simply observing how the birds are distributed in the space. In addition, farmers can recognize early disease symptoms of some diseases if the animals are unusually inactive, or unusually silent. Many other behavioral measures, such as occurrence of stereotypies, feather pecking, all forms of cannibalism, unusually high levels of aggression, and duration of tonic immobility (Kostal and Savory, 1994; Bilcik et al.,1998; Gunnarsson et al., 1999) can be excellent welfare indicators for ethologist. Physiological parameters, which include hormone levels such as cortisol or corticosterone (Craig et al. 1986a), heart rate (Price and Sibly, 1993), or immune status (Gross and Siegel, 1983; Patterson and Siegel, 1998) are frequently used as reliable indicators of the welfare status as well.

As indicated above, animal welfare also involves a psychological component as to "how the animals feel" (Duncan and Petherick, 1991), and an equally important ethical component "their quality of life" (Duncan and Fraser, 1997). These two aspects have been

responsible for much of the controversy surrounding welfare discussions because they are more vague, and can only be addressed *scientifically* through well-controlled experiments designed for such a purpose, and they are usually more difficult to evaluate in farm settings than are the behavioral, physical or physiological components. As indicated by Dawkins (1980), "animals are unable to talk, but they can express their preferences by their choices". One of the best methods to scientifically address animal motivation, or, of knowing the relative importance of different resources to the animals, is based on the principles of *demand theory* which is routinely applied by economists to determine the relative importance of different commodities to consumers (Dawkins, 1983a). Demand theory methodologies have proven successful to determine motivational states and preferences (feelings?) in poultry (Gunnarsson et al., 2000).

In addition, cost benefit models can be helpful in decision making when trying to determine the right balance between productivity and welfare. For example, as the rearing density in poultry houses increases, the health and performance of the birds will start to deteriorate slowly and almost imperceptibly. If density continues to increase it is likely that it will reach an inflection point where further density increments will produce a more severe reduction in performance or health status of the birds. It would make sense to determine "welfare standards" at the inflection points, that theoretically will allow maximum farm returns at minimum "welfare cost" for the animals (See Fig. 1 for a graphical example).

However, in some instances attempts to improve biological components of animal welfare may negatively affect their psychological aspects. A clear example will be the feed restriction programs applied to broiler breeders. If breeders are fed ad libitum, as are their progeny, body weights would increase to the point that many birds would become lame, and mortality associated with skeletal disease and heart disease would be unacceptably high (Katanbaf et al., 1989; Hocking, 1999). High body weight is also associated with impaired immune function (Han and Smyth, 1972; O'Sullivan et al., 1991), increased incidence of multiple ovulations causing reduced production of hatchable eggs (Nestor et al., 1980; Hocking et al., 1989), poor eggshell quality (Robinson et al., 1993), and reduced male fertility (Hocking and Duff, 1989). Although feed-restriction clearly benefits broiler breeders in the biological sense, it is stressful to the birds (European Commission, 2000), as they show increased pacing before the expected feeding time and increased drinking and pecking at non-food objects afterwards (Kostal et al., 1992; Savory et al., 1992). What are the options in cases like this?

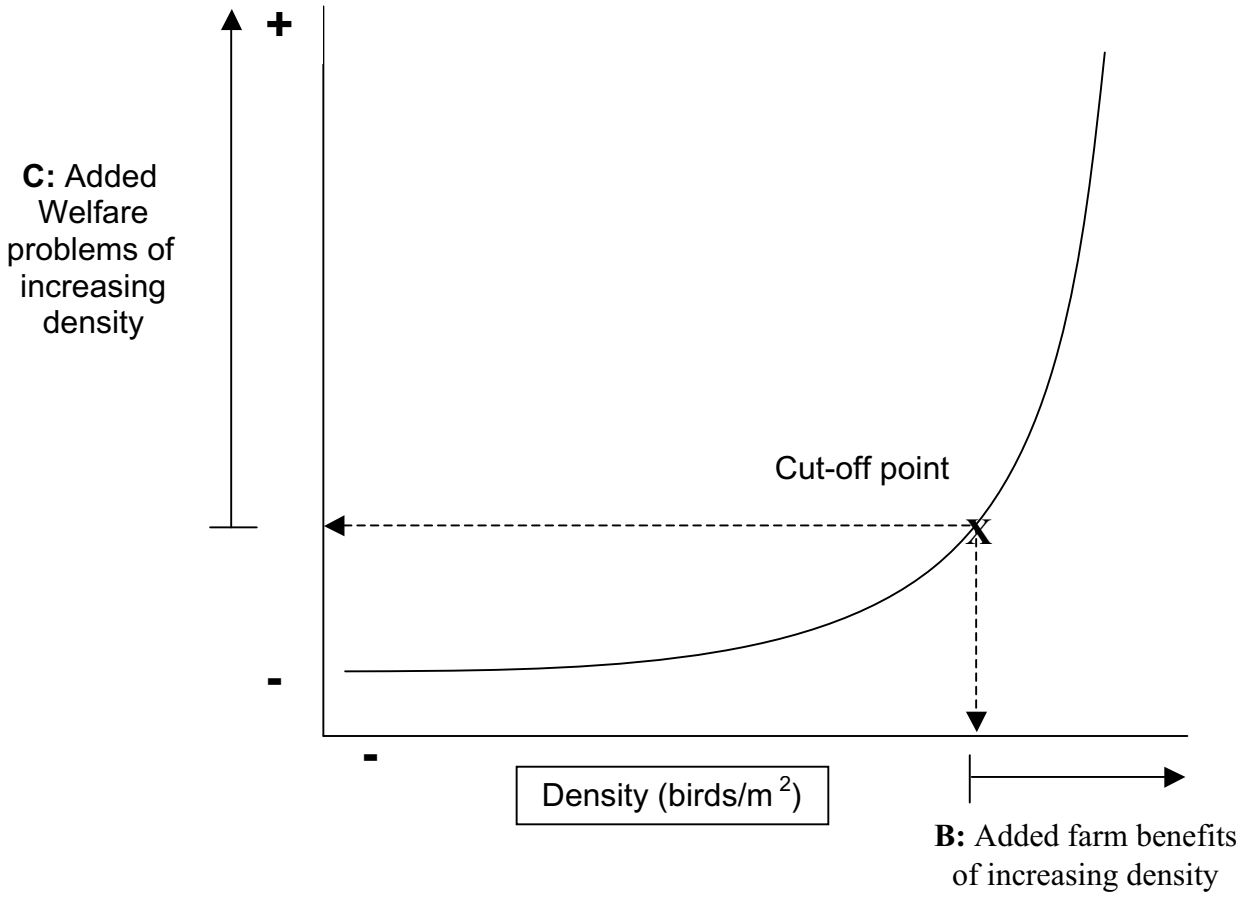

Figure 1. As rearing density increases, bird health slowly starts to deteriorate. If rearing density continues to increase it will likely reach an inflection point in the relationship. From this point on, small density increments will produce much more severe increments in health problems and reduction of performance on a per-bird basis. It would make sense to determine of the "welfare standards" at the inflection points, since theoretically at this point we reached maximum farm returns for farmers at a minimum "welfare cost" for the housed animals. Beyond the inflection point additional farm relative small benefits that could be obtained by continuing increasing density **(B)** will have much larger cost for the welfare of the birds **(C)**.

There are several scientific examples of how alternative management practices could improve welfare in cases like this one. Zuidhof et al. (1995) found that broiler breeders fed a diet diluted by oat hulls spent significantly less time at the drinker, thus it may be helpful in reducing the chances of wet litter and high ammonia in broiler breeder houses. Furthermore, results from swine (Terlouw et al. 1991; Wemelsfelder et al., 2000) suggested that providing attractive foraging materials that stimulate exploration help to maintain greater behavioral diversity and prevent the channeling of behavior into rigid, stereotyped sequences. Interestingly, provision of foraging materials have also been effective in reducing the risk of cannibalism and feather pecking in pullets of laying strains with intact beaks. There is some evidence that injurious pecking directed at other

birds results from redirection of foraging behavior in the absence of suitable foraging materials. The form of foraging materials, rather than their nutritive value, appears to be of importance in preventing feather pecking and cannibalism (Huber-Eicher and Wechsler, 1998). Because broiler genetic lines seem less susceptible to feather pecking and cannibalism than laying strains, it is likely that provision of suitable pecking and scratching materials (Wechsler and Huber-Eicher, 1998) could be effective in preventing the development of feather pecking and cannibalism in broiler breeders. This, in turn, would reduce the need to beak-trim broiler breeders while resulting in a cost savings as well as improved public perception of the industry. This would be a good example of how to address a welfare issue, while improving returns for the industry.

It is clear that science has developed methods to determine the impact of rearing conditions on the physical, physiological, biological and even the psychological aspects of welfare. However, the main problem regarding the successful analysis of welfare is, not the measurement of welfare *per se*, but where to establish acceptable limits for variables that are measured on a continuum scale. "From where to where in the scale" should we consider an animal in a good welfare state, and beyond which point must be considered to be simply acceptable, or poor? Contrary to some opinions it does not matter whether we use biological or psychological parameters, the scale problem is similar for all types of measurements. Where we decide to put the cut-off point of what should be considered good vs. poor welfare is an ethical decision. **Ethical questions cannot, and should not, be addressed in the scientific forum, simply because it is not science** and they can only be answered by philosophers, the society, and ultimately by the consumers. The questions are simple. Is it ethically correct or acceptable to grow animals under current rearing conditions or do we need to incorporate changes? And, how much are we (consumers) willing to pay for the suggested changes to occur? The answer to these questions would probably depend on the education, current moral values, and last but not least, on the economical development of the society.

2- "Hot" topics in poultry welfare

Although the livestock, broiler and turkey industries are not immune, it is the egg industry that has come under the greatest fire from animal welfare and animal rights groups. The housing of hens in cages, beak trimming, forced molting, and methods of disposing of spent hens are the "hottest" subjects of criticism (Newberry, 2001). Here I would like to address the reasons for some of those concerns and potential options available to the industry to minimize welfare problems at a minimum production cost.

Beak trimming effectively reduces feather pecking, aggressive pecking, and cannibalism in laying hens and turkeys (Cunningham, 1992). Therefore, it can be argued that the welfare of trimmed birds is improved over full-beaked birds and result in reduced stress (Struwe et al., 1992). However, the beak-trimming procedure itself does cause either acute or chronic pain thus reducing bird welfare. Hence, beak trimming in poultry is regarded as a very controversial management tool, to the point that this practice has been banned in some European countries (e.g. Switzerland and Sweden) and severely criticized in others (FAWC, 1991). Although beak trimming cannot be totally avoided

because of management problems, at least for now, the negative effects on welfare may be reduced. Research has shown that the age at which beak trimming is performed has an immense effect on the duration of pain and healing level of the beak (Hughes and Gentle, 1995). Pain, therefore, can be minimized if beak trimming is conducted between one and ten days of age (Gentle et al., 1997). On the contrary, when the procedure is done over older birds there is a greater chance of formation of neuromas in the beak stump, which may rapidly and spontaneously fire, resulting in chronic pain (Hughes and Gentle, 1995). In addition, provision of foraging material to the birds (as indicated in other sections of this paper) may reduce or even, in some cases, eliminate the need for beak trimming with the subsequent increase in profits for the industry.

Molting. Some animal rights and welfare groups have indicated that molting is a cruel process for the purpose of extending the productive lives of laying hens. They argue that natural molting in wild birds is a much more progressive process, and it is not inherently associated with significant weight loss. They also indicated that molted hens are more susceptible to diseases such as salmonella (http://www.upc-online.org/molting/990910fda_molt_letter.html), and will be more likely to infect other birds and humans (Holt and Gast, 2000). Feed deprivation in domestic fowl is known to increase stress hormone levels, and behaviors that are indicative of stress such as stereotypic (repetitive) pecking at inanimate objects (Kostal et al., 1992; Savory et al., 1993). Molting has also been associated with elevated mortality on large farms where daily individual monitoring of hen condition is difficult (Bell, 2000). Koelkebeck et al. (1991) reported mortality rates ranging between 4.6% and 7.9%, and noted that the majority of deaths occurred during the post-molt period.

On the other hand, Newberry (2001) indicated that a successful molt results in increased longevity of hens and reduces the number of hens needed to supply markets by approximately 50% (UEP, 2000). By doing so, it also reduces the number of spent hens that must be disposed. The catching and transport of spent hens is arguably the area in which bird well-being is most likely to be compromised (Newberry et al., 1999). It is perhaps for this reason that recent attempts to introduce legislation banning forced molting in California, Washington and Illinois have been unsuccessful.

The welfare concerns associated with molting do not reside in the process itself, but on the methods used to induce the molt (UEP, 2000). Some alternative methods of inducing molt in laying hens are available and include *ad libitum* feeding of wheat middlings or soybean hulls (Holt and Gast, 2000), or manipulation of mineral content in diets and the use of hormonal treatments (Hussein, 1996), however the potential for their application to commercial conditions is unclear. While effective alternative molting methods are developed, options to minimize impact of the molt on welfare will include (UEP, 2000): 1) close monitoring of the health status of the birds prior to the molt, with only healthy birds being molted, 2) use of the shortest possible period of feed withdrawal to accomplish the goal and to minimize mortality 3) feed should be returned when body weights reach no less than 70% of the starting weights, 4) water must be available at all times.

Spatial requirements. Because most animals in production are kept under some form of spatial restriction there has been a great interest of investigating how animals use the available space and to determine the consequences of this spatial restriction upon the animals (e.g. Hughes, 1977; Dawkins, 1983b; Doyen and Zayan, 1984; Lagadic and Faure, 1987; Roush et al., 1989; Roush and Cravener, 1990 for laying hens; Newberry and Hall, 1990, Estevez et al. 1997 for broilers).

High housing densities in poultry have been associated with increased mortality, and with reduction in bird performance (up to 7.6% higher mortality, and up to 24.4 fewer eggs at higher densities), reduction in feed intake, and increased corticosterone levels (Adams and Craig, 1985; Craig et al., 1986a and 1986b; Cunningham et al., 1987; Bell and Carey, 1998), all considered indicators of reduced welfare. Space allowance in these studies ranged from 48 to 80 in^2 per hen. Roush and Cravener (1990) using fuzzy set analysis established that no more than three hens should be housed 250 to 500 in^2 cages and no more than four in 750 in^2 cages to prevent negative consequences of spatial restriction. It is, however, the work published by Dawkins and Hardie (1989) the paper that had the most impact. This paper describes the minimum and maximum space used by laying hens to perform different behaviors (Fig. 2), and was used by the European Commission as the scientific basis to determine the minimum requirements of space (750 cm^2; 116 in^2) to house laying hens (Bill for the Protection of Laying Hens; Council Directive 1999/74/EC; L 203/56). This bill established the use of alternative cages as the sole legal cage system for commercial egg production permitted by the year 2012. Consequently, this bill bans the use of the battery cages for egg production in the 15 countries that currently belong to the EU. This new European legislation provides hens with near double the space to the space allowed in the U.S. In addition, this bill demands that all cages provide suitable claw shorteners, access of the birds to a nest box, a dust bath, and 15 cm perch space/hen (Fig. 3). There is however a tremendous concern within the EU producers about the economic viability of those cages. It is quite probable that the new cage system only will allow maintaining half of the hen population, whereas the demand for eggs will remain unchanged (WATT, 2002).

To prevent future drastic measures such as the one taken in the EU it is imperative that the U.S. industry takes a proactive approach to deal with welfare issues. In light of all the research available to date, the UEP (2000) established that space allowance to hens in production systems must be in the range of 67 to 86 in^2 /hen to minimize negative impact of spatial restriction on welfare.

Ammonia. Many other welfare problems in poultry are indirect results of the rapid deterioration of litter and air quality. At high rearing densities the litter may become easily wet as result of larger deposits of fecal content, spilled water (especially if bell drinkers are used), and inadequate ventilation. Moisture, in conjunction with high temperature, promotes bacterial growth, which will decompose organic material producing ammonia in the process. Ammonia is a highly irritating and toxic gas (Kristensen and Wathes, 2000). These two factors, ammonia and wet litter combined, are responsible for a large number of density related welfare problems in poultry, such as increasing incidence of contact dermatitis in broilers, turkeys and layers kept in floor

systems (Berg, 1998; Wang et al., 1998), and of infectious and respiratory diseases and ascites (for review see Whates, 1998; Kristensen and Wathes, 2000). To eliminate these problems it is recommended that ammonia levels should not exceed 20 ppm (Whates, 1998). Best management practices to maintain these ammonia levels include: use of diets that reduces the level of urea and proteins, use of nipple drinkers, maintain densities according with the ventilation capacity of the building, use litter material with high water holding capacity, and to minimize overdrinking by provision of pecking substrates to the birds.

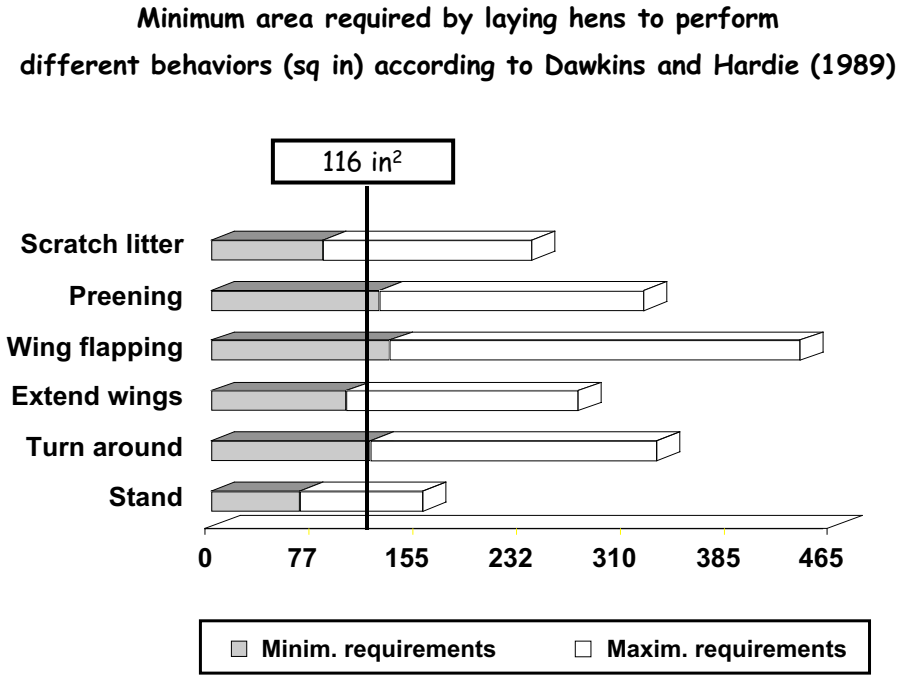

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Figure 2. Laying hens space requirements to perform different behaviors (Dawkins and Hardie, 1989). The line at the 116 in^2 level represents the space standards adopted by the European Union in their regulations for the protection of laying hens (Council Directive 1999/74/EC; L 203/56).

Catching, transportation, and slaughter. The welfare of poultry during catching, transportation, and slaughter can be compromised if it is done improperly. Catching teams are expected to load birds at a rate of 1,000 to 1,500 birds/hr. To accomplish these goals often the catchers pay little attention to prevent physical damage to the birds, resulting in bruises, dislocated and broken hips, legs, and wings, and internal hemorrhage (Gregory and Wilkins, 1992; Gregory, 1998). This problem is even more serious when catching spent hens, first of all because of their reduced value, and secondly because spent hens usually have fragile bones due to decalcification that make them more prone to bone breakage (Kristensen et al., 2001). Fractures in birds are likely to be painful, and pain might be even more intense when the birds are handle and during transportation (Newberry et al., 1999). Catching the birds by both legs, and placing them

directly into coops or wheeled modules (rather that carried manually) helps to reduce bone breakage (Gregory et al., 1992; Kristensen et al., 2001).

The welfare problems during transportation are mainly related to thermal stress, because the birds in the center of the truck poultry tend to overheat, whereas the ones placed by the edge tend to suffer the weather inclemency the most. Provision of tarps to cover the sides of the truck during harsh weather conditions will help to minimize these effects (Newberry et al., 1999). In addition sick animals should be euthanized at the farm and never transported to the slaughter plant. It is essential therefore, that catching crews and truck drivers are able to identify sick or injured animals. Once the birds arrive to the slaughter plant the welfare issues relate to the waiting time (particularly in spent hens) and to the adequacy of the holding facilities to control for extreme environmental conditions (e.g. fans and misters to minimize heat). To minimize DOA waiting times for slaughter must be reduced as much as possible. In addition, effectiveness of the electrical stunners, and of the killing equipment has been questioned, since there have been occasions in which live birds entered into the scalding tank.

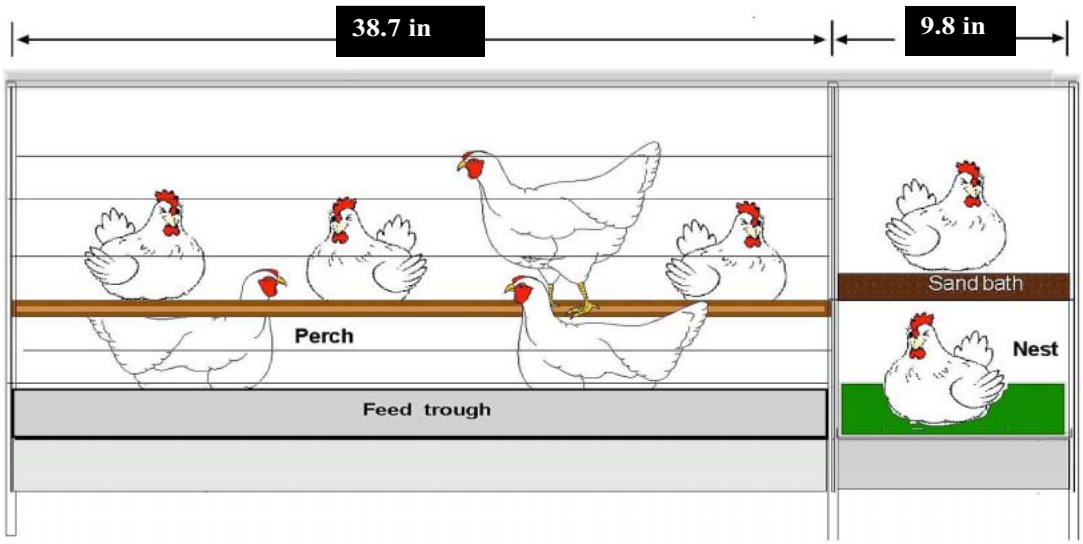

Figure 3. Alternative cage system hens are provided with 116 in^2/bird, 5.9 in perch length/hen, and a nest box and a sand bath (on the right). Drawing modified from Tauson, (2000).

Voluntary welfare programs

1- United Egg Producers

The United Egg Producers were one of the first groups to establish animal regulations for an animal industry. Observing the situation in Europe, the egg industry recognized that public discontent could lead to the imposition of costly regulatory burdens that might potentially have adverse effects on animal welfare rather than the benefits intended. They recognized the value of taking a proactive, leadership role on these issues rather than being passive as has been the egg industry in Europe (Newberry, 2001). Therefore, in 1999, the United Egg Producers (UEP) appointed a Scientific Advisory Committee on Animal Welfare to conduct a thorough review of the scientific literature of critical issues with the goal of developing recommendations based on scientific evidence, rather than anthropomorphic opinions. The Producer Committee used the recommendations provided by the Scientific Committee as a basis for updating the industry's existing animal care guidelines (UEP, 1982), and determined the timeline for implementation.

The new guidelines (UEP, 2000) support a **space allowance** of 67 to 86 in^2 as the minimum required to avoid negative consequences of crowding (e.g. increased mortality and reduction on bird performance); space availability that will be reached in a phase-in plan by the year 2012. They also recommend that the slope of the cages should not exceed 8 degrees and provision of feeder space large enough to allow all birds to eat at the same time. The previous guidelines allowed feed withdrawal to induce a **molt**, whereas the new guidelines call for the development of alternatives to feed withdrawal for molting. In addition, they give very detailed and specific guidelines on beak trimming practices to minimize impact of the procedure on the birds' welfare. These specifications include; performing the trimming prior to the 10 days of age of the birds by well-trained crews, providing additional vitamins to the birds, prior, and after the beak trimming is conducted to minimize stress, and adjustments of feeder and water heights until the beaks are healed.

Regarding handling, transportation and slaughter, all catching crew members must be knowledgeable in handling hens, the catching should be conducted at low light intensities to keep the birds calmer, and it is recommended that hens are caught by both legs. They also recommend the use of carts for flock removal, that the size of the cage doors, crate doors and panels in the truck should be large enough to prevent bruising and injury, and avoidance of fasting of the hens for periods longer than 24 hr. prior to slaughter. Some preliminary economical analysis conducted by UEP predicts that increasing space availability from 48 to 72 in^2 /hen will increase the cost of production from \$0.415 to \$0.526. This difference in production cost may seem large, however it might be a very reasonable price to pay if this provides long-term stability and sustainability to the U.S. egg producers.

Regarding the UEP guidelines it must be mentioned that the Scientific Advisory Committee indicated in their scientific report that although the use of non-cannibalistic

genetic strains is encouraged, the severe animal welfare consequences of cannibalism made it unwise to suggest that the practice of beak trimming be abolished at this time. They also indicated that although the housing of hens in cages receives strong criticism from some groups, the Scientific Advisory Committee did not find compelling scientific evidence to support the abandonment of cages. It was recognized that both cage and non-cage housing systems have costs and benefits for the welfare of hens and that one is not clearly superior to the other. Other considerations, such as specific design features of the housing, and the care given by individual farm workers, can have a much greater impact on animal well-being (Newberry, 2001).

2- McDonald's

Similar to UEP, McDonald's welfare guidelines established recommendations for minimum space requirements for laying hens in the year 2000. However, they impose the recommended space to be no less than 72 in^2 /bird, and more importantly, they imposed a one-year implementation schedule (reached in 2001), and decided to discontinue forced molting altogether. Similarly to UEP, McDonald's indicated the need of finding alternative methods to beak trimming. Approximately 2.5% of the U.S. egg producers are following these guidelines to produce eggs for McDonald's. Data provided in public press articles indicated that the banned of molting and the increments in space availability might increase the production cost of a dozen "happy eggs" by 50 cents.

3- National Chicken Council

One year later, following the example of UEP, the National Chicken Council (NCC) started to work on the development of a set of voluntary welfare guidelines for the U.S. broiler industry. The NCC does not have a Scientific Advisory Committee to help in the process of developing the guidelines, although independent poultry experts and veterinarians from academia provide outside review.

The NCC guidelines (NCC Animal Welfare guidelines, 2001) are not yet of public domain, but some of the main points of their auditing system include the following: Humane disposal of unviable chicks and pipped eggs at the hatchery, at the farm ammonia levels should not to exceed 50 ppm for a 24 hr TWA, maximum stocking densities permitted should not surpass 0.6 ft^2/ bird (except for Cornish and game hens), sick birds must be culled with an approved humane euthanasia method.

Regarding catching and transportation, the NCC guidelines recommend that a maximum of seven birds should be carried per hand, and that density in the transport crates must allow all birds to sit at the same time. Thermal stress during transport should be minimized by provision of panels or other covers on the sides of the truck. NCC also recommends the creation of incentive programs for catchers to guarantee appropriate bird handling, and measures to minimize DOA and downgrades during transportation. At the slaughter plant holding time should not exceed six hr. and the facilities should have sufficient number of fans to insure appropriate ventilation. Stunning efficacy should not

be less than 98%, and not more than 2% of the birds should be killed by backup personnel. There is no set time for the implementation of the NCC program.

The guidelines proposed by NCC are very exhaustive and covers most (if not all) of the critical points to insure the welfare of broiler chickens if conveniently applied. However, some criticisms have been raised regarding these guidelines since they have not been created following a similar procedure to the one established by UEP (creating a Scientific Advisory Group to help them to write their guidelines according to scientific facts). It seems therefore, that it is essential to the industry to seek advice from the academic community to help them in the process of gaining back the trust of the consumers.

4- Other Welfare Programs

Almost all corporations in the fast food industry (e.g. Burger King, Wendy's and KFC), many organizations (e.g. FASS, The Food Marketing Institute), and poultry companies (e.g. Perdue Farms), have currently established or are in the process of establishing their own set of welfare guidelines. Some groups have based their welfare standards on those established by the American Humane Association (AHA, 2000) as a model to follow, but modifying some of the AHA recommendations that were particularly difficult to follow by the industry due to excessive cost.

Auditing welfare and final notes

It is quite clear that a proactive sector of the animal industry has taken a serious look at the latest developments in Europe regarding welfare, and are in the process of implementing sound management practices to minimize the risk of further criticisms by animal rights activists. It is essential, however, that the companies uphold verification of the adoption of these voluntary welfare regulations so that they can be recognized (and reward?) for their efforts. To accomplish this objective, most of the welfare guidelines are followed (or will be followed) by a rigid auditing system, which provides points for every management practice that adheres to the guidelines. The companies must target a certain score in order to be certified. In case of failure, most guidelines allow a three (or so) month grace period so that the companies or farms make the necessary corrections to resolve any problems identified during the inspection. If corrections are not made during the grace period then the farm will be scored as failing to meet the guidelines.

Most of the guidelines to date suggest that the welfare inspections be conducted by independent experts from academia. However, given the large number of companies developing welfare programs it is quite unlikely that there will be enough experts to accommodate the industry demands. A solution could be based on the creation of educational programs by academic and extension agents at the Universities to certify future auditors. The Extension Services at the Land Grant Universities may play an important role in facilitating the creation of such programs if approached by the industry. In addition, many of the above mentioned guidelines have incorporated to a larger or smaller extent educational and training programs for their personnel to insure high

standards in the daily care and management of the animals. The extension services could help the industry to accomplish this task by creating educational materials and training programs for this purpose as well. It is important to remark that the most important animal welfare improvements and measures that will result in the greatest impact will relate to the knowledge, skills, attitude and education of the people that are in contact with the animals on daily basis. Therefore high quality educational materials will be fundamental to the success of these welfare programs.

It should be mentioned that although all the welfare guidelines are created with the aim of improving animal welfare, the minimum standards set may vary among them. These variations might respond to the different industry priorities, but also to the fact that some of the standards are established according to ethical decisions and therefore are not unique. However because this diversity of opinions will create certain confusion in the consumers it would be advisable for the industry in the long term to aim for a unique set of guidelines for the rearing of each of the species.

As a final note; the price of some of the suggested changes might seem quite expensive. However, when one looks at the long term benefits and sustainability it is likely that those animal industries that do not take such a proactive approach may end up paying a much higher cost in the long run.

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