

## **An HSUS Report: The Welfare of Animals in the Meat, Egg, and Dairy Industries**

### **Abstract**

Each year in the United States, 10 billion land animals are raised and killed for meat, eggs, and milk.(1,2) Statistically, farm animals comprise 98 percent of all animals in the country with whom we interact directly,(3) and that staggering percentage does not even include the estimated 10 billion aquatic animals killed annually for human consumption. Indeed, the numbers of animals killed by trappers and hunters; in classrooms, research laboratories, and animal shelters; and on fur farms; and those animals raised as companions or used for entertainment by circuses and zoos, collectively make up only 2 percent of the animals in some established relationship with humans.(4)

These farm animals—sentient, complex, and capable of feeling pain and frustration, joy and excitement—are viewed by industrialized agriculture as mere meat-, egg-, and milk-producing machines, and their welfare suffers immensely as factory farm profit outweighs their well-being. Yet, despite the routine abuses they endure, no federal law protects animals from cruelty on the farm, and the majority of states exempt customary agricultural practices—no matter how abusive—from the scope of their animal cruelty statutes. The welfare of farm animals often loses out to the economic interests of factory farmers who can make larger profits by intensively confining animals and breeding them for rapid growth with little regard for the amount of suffering the animals endure.(5)

### **The Birds**

Of the 10 billion land animals killed annually in the United States, 95 percent are birds, and the overwhelming majority are “broiler” chickens raised for meat, 1 million killed each hour. Additionally, nearly 300 million laying hens(6) are raised for eggs, and more than 250 million turkeys(7) are slaughtered for meat.

On factory farms, birds raised for meat are confined by the tens of thousands in barren sheds,(8,9) unable to carry out many normal behaviors, including roosting and foraging.(10) The most significant assault on their welfare is fast growth.(11) The poultry industry has used selective breeding and growth-promoting antibiotics to produce birds whose bodies “are on the verge of structural collapse.”(12) To put their growth rate into perspective, the University of Arkansas Division of Agriculture reports, “If you grew as fast as a chicken, you’d weigh 349 pounds at age 2.”(13) As a result, 90 percent of broiler chickens have painful leg problems,(14,15) and 26 percent suffer chronic pain as a result of bone disease.(16) On October 14, 1991, *The Guardian* quoted professor John Webster of the University of Bristol School of Veterinary Science who stated, “Broilers are the only livestock that are in chronic pain for the last 20% of their lives. They don’t move around, not because they are overstocked, but because it hurts their joints so much.”

After only 45 days for broiler chickens(17,18) and 16 weeks for turkeys,(19) the birds have reached market weight. Workers hastily catch the animals, and many birds suffer dislocated and broken hips, legs, and wings, as well as internal hemorrhages.(20-22) The birds are crammed into crates stacked one atop another on trucks. During their journey to the slaughterhouse, they aren’t given any food, water, or protection from extreme temperatures.(23,24)

Like birds raised for meat, chickens in the egg industry suffer immensely—beginning right after birth. Male chicks are considered byproducts, as they're unable to lay eggs and aren't bred for meat production. Millions each year are gassed, crushed, or thrown into garbage bins to die from dehydration or asphyxiation.(25,26) Most female chicks are painfully mutilated without any anesthesia.(27,28) The tips of their sensitive beaks are sliced off with a hot blade, making it difficult for them to grasp food.(29)

More than 95 percent(30) of hens in U.S. factory farms are intensively confined in small, wire “battery cages,” stacked several tiers high and extending down long warehouses. Each hen is given less space than the area of a letter-sized sheet of paper(31) in which to eat, sleep, lay eggs, and defecate. The intensive confinement makes it impossible for them to engage in nearly all of their natural habits, including dust-bathing, foraging, or nesting, the most significant source of frustration for battery caged hens.(32) While many countries are phasing out the abusive battery cage system, U.S. egg producers still overcrowd hens in barren cages so small the birds can't even spread their wings.(33,34)

When their productivity wanes, hens may be “force molted”—through low-nutrient feed or starvation, until they lose 30 percent of their body weight(35,36)—to induce yet another laying cycle. After two years, the hens are no longer profitable and are ripped from the cages, limbs often tearing,(37) as teams work at an hourly rate of up to 1,500 birds, sometimes holding seven hens at a time.(38) As with broiler chickens and turkeys, egg-laying hens are crammed in crates stacked on transport trucks and denied food, water, or protection from extreme temperatures during their journey to slaughter.(39,40)

At the slaughter plant, the birds are dumped onto conveyors and hung upside down in shackles by their legs. In the United States, federal regulations do not require birds to be rendered unconscious before they are slaughtered,(41) as poultry are not interpreted to be protected under the federal Humane Methods of Slaughter Act. Birds have their throats cut by hand or machine. As slaughter lines run at rapid speeds (up to 8,400 chickens per hour), mistakes are common and some birds are still conscious as they enter tanks of scalding water intended to loosen their feathers.(42,43)

## **The Pigs**

Pigs are intelligent, highly social animals, yet factory farmers treat the more than 100 million pigs(44) slaughtered annually in the United States as meat- or piglet-producing units.

Sows (female pigs) suffer through rapid cycles of impregnation, giving birth, and nursing, all while intensively confined. During their four-month pregnancies, an estimated 60 to 70 percent(45) are kept in stalls—individual metal “gestation crates” 2 feet wide by 7 feet long(46)—so small the animals can't even turn around. The U.S. Department of Agriculture's Agricultural Research Service reported in “Settling Doubts About Livestock Stress,” an article in its March 2005 issue of *Agricultural Research*, “Confining pregnant sows in stalls is a major well-being issue. It curtails movement and social interaction and fails to provide dirt or hay to satisfy their instincts to use their snouts to root for food.” Despite this understanding about the welfare issues of gestation crates, their use is still the standard practice of the U.S. pork industry although they have been banned in other countries.

Right before giving birth, the sows are moved into equally restrictive “farrowing crates,” stalls designed to separate mother pig from her nursing piglets and so small she can only stand up and lie down. After the piglets are weaned prematurely,(47) the cycle begins again for the mother pig, who averages 2.1 to 2.5 litters each year.(48) Once they can no longer reproduce efficiently, the sows are sent to slaughter.

“Meat” pigs undergo painful mutilations—including castration and tail docking—without anesthesia.(49) For six months, they are confined in filthy sheds or pens until they reach the average market weight of 266 pounds.(50) As with birds, the pigs are not given food, water, or protection from extreme heat or cold while on the trucks transporting them to slaughter.

According to the federal Humane Methods of Slaughter Act, pigs and other animals considered “livestock” are to be rendered insensible to pain before they are shackled and killed.(51) However, a January 2004 report by the U.S. General Accounting Office on the USDA’s enforcement of the Act found that some animals are still conscious as they are hung upside down and their throats are slit.(52)

## **The Cows**

Every year in the United States, approximately 35 million cattle are raised for beef,(53) 9 million cows for milk,(54) and 1 million calves for veal.(55)

Most beef cattle are castrated, de-horned, and branded(56)—painful procedures performed without any anesthesia.(57) For seven months, calves graze on the range(58) before they are transported to feedlots,(59) where they are fattened on unnatural diets. Within six months, they reach market weight of 1,200 pounds(60) and are trucked to slaughter. As with other animals to be killed for food, cattle are not given any food, water, or protection from the elements during the journey.

Dairy cows endure annual cycles of artificial insemination, mechanized milking for 10 out of 12 months(61) (including 7 months of their 9-month pregnancies), and giving birth. The cows are routinely given hormones to get the highest milk yield possible. According to Dr. John Webster, “The amount of work done by the [dairy] cow in peak lactation is immense. To achieve a comparable high work rate a human would have to jog for about 6 hours a day, every day.”(62) This rigorous cycle overburdens the cows, who are considered “productive” for only two years(63) and are slaughtered when four years old.(64)

A byproduct of the dairy industry is a calf per year per cow. According to a U.S. Department of Agriculture fact sheet, “Male dairy calves are used in the veal industry. Dairy cows must give birth to continue producing milk, but male dairy calves are of little or no value to the dairy farmer.”(65) As a result, within their first few days of life, the calves are taken from their mothers.(66,67) Females will likely join the dairy line, while some males are sold to veal farmers. Indeed, the veal industry would not exist without the dairy industry. Calves raised for veal are intensively confined and tethered by the neck in individual stalls so small they can’t turn around during their entire 16- to 18-week lives before slaughter.(68) Veal crates are widely known for their inherent cruelty. As with conventional battery cages and gestation crates, veal crates are being phased out in Europe, yet are still in use in the United States.

Cattle suffer the same mistreatment as pigs during both their transport and slaughter.

## **The Aquatic Animals**

Although the number of aquatic animals killed for food in the United States goes unreported, annual estimates are more than 10 billion.

Commercial fishers use a variety of techniques, from setting miles of line and baited hooks to catch large animals such as sharks, to ensnaring schools of fish in overcrowded, large nets towed underwater by trawlers. When deep sea fish are quickly brought to the surface, some may experience decompression and their organs can burst before they suffocate on the boat’s deck.

The industry’s nets aren’t discriminating, catching fish, sea turtles, birds, and other animals: The U.N. Food and Agriculture Organization estimates that one in four animals caught in fishing gear dies as “bycatch”—unwanted or unintentional catch.(69) Leading marine mammal scientists have stated that entanglement in fishing gear is one of the largest threats to whales, dolphins, and porpoises worldwide, killing more than 300,000 animals per year.(70)

An even more significant animal welfare problem is aquaculture—the factory farming of fish—the fastest growing agricultural industry in the world. By weight, more than one-third of all aquatic animals eaten in the United States—800 million pounds—are now raised in farms(71) reported to be “basically an aquatic version of broiler chicken production.”(72) And, similar to the abuses rampant in the chicken industry, aquaculture causes great suffering in farmed fish.(73) On December 9, 2002, *The Los Angeles Times* published “Fish Farms Become Feedlots of the Sea,” and stated: “Today, [aquaculture] farms typically put 50,000 to 90,000 fish in a pen 100 feet by 100 feet. A single farm can grow 400,000 fish. Others raise a million or more.”

## **Productivity and Welfare**

Animal agribusiness representatives often claim that it is in their own interest to treat animals well, and a common defense of factory farming is that “only happy animals produce.” While there are some instances where improving animal welfare would also improve the bottom line, unfortunately, this is not always the case.

According to poultry welfare expert Dr. Joy Mench: “It is now generally agreed that good productivity and health are not necessarily indicators of good welfare....Productivity...is often measured at the level of the unit (e.g. number of eggs or egg mass per hen-housed), and individual animals may be in a comparatively poor state of welfare even though productivity within the unit may be high.”(74)

Farm animal welfare expert Dr. Donald Broom states: “[E]fforts to achieve earlier and faster growth, greater production per individual, efficient feed conversion and partitioning, and increased prolificacy are the causes of some of the worst animal welfare problems.”(75)

And agricultural ethicist Dr. Bernard Rollin asserts: “[I]n industrial agriculture, this link between productivity and well-being is severed. When productivity as an economic metric is applied to the whole operation, the welfare of the individual animal is ignored.”(76)

## **Conclusion**

There are no federal animal welfare laws regulating the treatment of the billions of animals raised for meat, eggs, and milk, while they’re on the farm. Further, while all 50 states have cruelty statutes, most explicitly exempt common farming practices, no matter how abusive. As a result, farm animals suffer immensely as, within much of animal agribusiness, the welfare of the animals is severely compromised by customary factory farming practices, as the economic interests of the producer often conflict with—and generally take priority over—the animals’ well-being.

## **References**

1. U.S. Department of Agriculture National Agricultural Statistics Service. 2006. Poultry slaughter: 2005 annual summary. [usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2006.pdf](http://usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2006.pdf).
2. U.S. Department of Agriculture National Agricultural Statistics Service. 2006. Livestock slaughter: 2005 summary. [usda.mannlib.cornell.edu/usda/current/LiveSlauSu/LiveSlauSu-03-06-2006\\_revision.pdf](http://usda.mannlib.cornell.edu/usda/current/LiveSlauSu/LiveSlauSu-03-06-2006_revision.pdf).
3. Wolfson DJ and Sullian M. 2004. Foxes in the hen house—animals, agribusiness, and the law: a modern American fable. In: Sunstein CR and Nussbaum MC (eds.), *Animal Rights: Current Debates and New Directions* (New York, N.Y.: Oxford University Press, pp. 206-7).
4. Ibid.
5. Cheeke PR. 2004. *Contemporary Issues in Animal Agriculture, Third Edition* (Upper Saddle River, N.J.: Pearson Education, Inc., p. 255).
6. U.S. Department of Agriculture National Agricultural Statistics Service. 2006. Chickens and eggs: 2005 summary. [usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2006.pdf](http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2006.pdf).
7. USDA NASS. Poultry slaughter: 2005 annual summary, op. cit.

8. Ernst RA. 1995. University of California Cooperative Extension, Poultry Fact Sheet No. 20, June 1995. [animalscience.ucdavis.edu/Avian/pfs20.htm](http://animalscience.ucdavis.edu/Avian/pfs20.htm).
9. Voris JC. 1997. University of California Cooperative Extension, Poultry Fact Sheet No. 16c, September 1997. [animalscience.ucdavis.edu/Avian/pfs16C.htm](http://animalscience.ucdavis.edu/Avian/pfs16C.htm).
10. Duncan IJH and Hughes BO. 1972. Free and operant feeding in domestic fowls. *Animal Welfare* 20: 775.
11. Duncan IJH. 2004. Welfare problems of poultry. In: Benson GJ and Rollin BE (eds.), *The Well-Being of Farm Animals: Challenges and Solutions* (Ames, Iowa: Blackwell, p. 310).
12. Wise D and Jennings A. 1972. Dyschondroplasia in domestic poultry. *Veterinary Record* 91:285-6.
13. University of Arkansas Division of Agriculture Cooperative Extension Service. Top ten facts about chickens. [kidsarus.org/kids\\_go4it/growit/raiseit/chickens.htm](http://kidsarus.org/kids_go4it/growit/raiseit/chickens.htm).
14. Danbury TC, Weeks CA, Chambers JP, Waterman-Pearson AR, and Kestin SC. 2000. Self selection of the analgesic drug carprofen by lame broiler chickens. *Veterinary Record* 146:307-11.
15. Kestin SC, Knowles TG, Tinch AE, and Gregory NG. 1992. Prevalence of leg weakness in broiler chickens and its relationship with genotype. *Veterinary Record* 131:190-4.
16. Ibid.
17. Duncan IJH. 2001. Welfare problems of meat-type chickens. *Farmed Animal Well-Being Conference at the University of California-Davis, June 28-29, 2001*.
18. Personal correspondence with Stephen Pretanik, director of Science and Technology, National Chicken Council, Washington, D.C., January 14, 2004.
19. National Turkey Federation. Turkey facts & trivia. [eatturkey.com/consumer/raising/raise.html](http://eatturkey.com/consumer/raising/raise.html).
20. Duncan IJH. 1989. The assessment of welfare during the handling and transport of broilers. In: Faure JM and Mills AD (eds.), *Proceedings of the Third European Symposium on Poultry Welfare* (Tours, France: French Branch of the World Poultry Science Association, pp. 79-91).
21. Gregory NG and Wilkins LJ. 1992. Skeletal damage and bone defects during catching and processing. In: Whitehead CC (ed.), *Bone Biology and Skeletal Disorders in Poultry* (Abingdom, England: Carfax Publishing).
22. Gregory NG. 1998. *Animal Welfare and Meat Science* (Wallingford, England: CABI Publishing, pp. 183-94).
23. Weeks CA and Nicol C. 2000. Poultry handling and transport. In: Grandin T (ed.), *Livestock Handling and Transport* (Wallingford, England: CABI Publishing, pp. 363-84).
24. Michigan State University College of Law Animal Legal & Historical Center. 2005. Twenty-Eight Hour Law of 1877. [animallaw.info/statutes/stusfd49usc80502.htm](http://animallaw.info/statutes/stusfd49usc80502.htm).
25. MacArthur M. 2002. Analyst says poultry growers oblivious to poor conditions. *Western Producer*, Dec. 12, 2002.
26. Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: Salem DJ and Rowan AN (eds.), *State of the Animals 2001* (Washington, D.C.: Humane Society Press, p. 89).
27. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? *Journal of Applied Animal Welfare Science* 4:207-21.
28. Mench J. 1992. The welfare of poultry in modern production systems. *Poultry Science Review* 4:112.
29. Ibid.
30. United Egg Producers. 2005. *United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2005 Edition* (Alpharetta, Ga.: United Egg Producers). [animalcarecertified.com/docs/2005\\_UEPanimal\\_welfare\\_guidelines.pdf](http://animalcarecertified.com/docs/2005_UEPanimal_welfare_guidelines.pdf).
31. United Egg Producers, op. cit., 12.
32. Duncan IJH. 2001. The pros and cons of cages. *World's Poultry Science Journal* 57:385.
33. Stamp Dawkins MS and Hardie S. 1989. Space needs of laying hens. *British Poultry Science* 30:413-6.
34. Mench JA and Swanson J. 2000. Developing science-based animal welfare guidelines. A speech delivered at the 2000 Poultry Symposium and Egg Processing Workshop, [animalscience.ucdavis.edu/Avian/mench.pdf](http://animalscience.ucdavis.edu/Avian/mench.pdf).
35. Fraser D, Mench J, and Millman S, op. cit., 94.
36. Duncan IJH. *Animal welfare issues in the poultry industry*, op. cit.
37. Ibid.
38. Estevez I. 2002. Poultry welfare issues. *Poultry Digest Online* 3: No. 2.

39. Weeks CA and Nicol C, op. cit.
40. Michigan State University College of Law Animal Legal & Historical Center, op. cit.
41. Wolfson DJ. 1999. Beyond the Law: Agribusiness and the Systemic Abuse of Animals Raised for Food or Food Production (Farm Sanctuary, Inc., p. 14).
42. Higgins KT. 2002. Tools of the new trade. *Food Engineering* 4(1):46.
43. Boyd F. 1994. Humane slaughter of poultry: the case against the use of electrical stunning devices. *Journal of Agricultural and Environmental Ethics* 7:221-36.
44. USDA NASS. Livestock slaughter: 2005 summary, op. cit.
45. Barnett JL, Hemsworth PH, Cronin GM, Jongman EC, and Hutson GD. 2001. A review of the welfare issues for sows and piglets in relation to housing. *Australian Journal of Agricultural Research* 52:1-28. Cited in: Pajor EA. 2002. Group housing of sows in small pens: advantages, disadvantages and recent research. In: Reynells R (ed.), *Proceedings: Symposium on Swine Housing and Well-being* (Des Moines, Iowa: U.S. Department of Agriculture Agricultural Research Service, June 5, pp. 37-44). Accessed March 6, 2006. [www.ces.purdue.edu/pork/sowhousing/swine\\_02.pdf](http://www.ces.purdue.edu/pork/sowhousing/swine_02.pdf).
46. McGlone J. The crate. In: Reynells R (ed.). 2003. *Proceedings: Symposium on Swine Housing and Well-being* (Des Moines, Iowa: U.S. Department of Agriculture Agricultural Research Service, p. 35). Accessed March 8, 2006. [www.ces.purdue.edu/pork/sowhousing/swine\\_02.pdf](http://www.ces.purdue.edu/pork/sowhousing/swine_02.pdf).
47. Rollin BE. 1995. *Farm Animal Welfare: Social, Bioethical, and Research Issues* (Ames, Iowa: Iowa State Press, p. 95).
48. Swine News. 2006. North Carolina State Cooperative Extension Service. 2006. Swine News. February, Volume 29, Number 1. [mark.asci.ncsu.edu/Swine\\_News/2006/February/February06.pdf](http://mark.asci.ncsu.edu/Swine_News/2006/February/February06.pdf). Accessed May 5, 2006.
49. Purdue University Cooperative Extension Service. 2001. *Pork Industry Handbook*, p. 8.
50. USDA NASS. Livestock slaughter: 2005 summary, op. cit.
51. Humane Methods of Livestock Slaughter, 7 U.S.C.A. § 1902(a). Humane Methods. [animallaw.info/statutes/stusfd7usca1901.htm](http://animallaw.info/statutes/stusfd7usca1901.htm).
52. U.S. General Accounting Office. 2004. Humane Methods of Slaughter Act: USDA Has Addressed Some Problems But Still Faces Enforcement Challenges, GAO-04-247. Released January 30, 2004. [gao.gov/atext/d04247.txt](http://gao.gov/atext/d04247.txt).
53. U.S. Department of Agriculture National Agricultural Statistics Service. Beef Cows: Inventory on January 1 by Year, U.S.: 1920 to 2004. Accessed January 27, 2006, at [www.nass.usda.gov/Charts\\_and\\_Maps/Cattle/bcow.asp](http://www.nass.usda.gov/Charts_and_Maps/Cattle/bcow.asp).
54. U.S. Department of Agriculture National Agricultural Statistics Service. Milk Cows: Inventory by Year, U.S.: 1993 to 2002. Accessed January 27, 2006, at [www.nass.usda.gov/Charts\\_and\\_Maps/Milk\\_Production\\_and\\_Milk\\_Cows/milkcows.asp](http://www.nass.usda.gov/Charts_and_Maps/Milk_Production_and_Milk_Cows/milkcows.asp).
55. Weise E. 2004. Illegal hormones found in veal calves. *USA Today*, March 28, 2004. [usatoday.com/news/health/2004-03-28-veal-usat\\_x.htm](http://usatoday.com/news/health/2004-03-28-veal-usat_x.htm).
56. Goodrich R and Stricklin WR. 2004. South Dakota State University College of Agriculture and Biological Sciences Department of Animal and Range Sciences Extension & Research. Beef. Last updated October 19, 2004. [ars.sdstate.edu/animaliss/beef.html](http://ars.sdstate.edu/animaliss/beef.html).
57. Rollin BE, op. cit., 65-8.
58. Ibid.
59. Lawrence J, Shouse S, Edwards W, Loy D, Lally J, and Martin RE. 2000. Beef feedlot systems manual. Presented by the Iowa Beef Center and Iowa State University Extension as a supplement to the Cattle Feeding in Iowa for the 21<sup>st</sup> Century Conference, November 1, 2000. [extension.iastate.edu/Publications/PM1867.pdf](http://extension.iastate.edu/Publications/PM1867.pdf).
60. Goodrich R and Stricklin WR, op. cit.
61. U.S. Department of Agriculture Animal and Plant Health Inspection Service. 1996. Dairy 1996 NAHMS Study, pp. 15-6.
62. Webster AJ. 1986. Health and welfare of animals in modern husbandry systems: dairy cattle. In *Practice* May 8(3):85-9.

63. Extending functional longevity. *Country Folks of Pennsylvania*, May 12, 1997, p. A9.
64. Wallace RL. 2004. Market cows: a potential profit center. University of Illinois at Urbana-Champaign.
65. U.S. Department of Agriculture Food Safety and Inspection Service Consumer Education and Information. 2005. Safety of Veal...from Farm to Table. Last updated May 2005. [fsis.usda.gov/Fact\\_Sheets/Veal\\_from\\_Farm\\_to\\_Table/index.asp](http://fsis.usda.gov/Fact_Sheets/Veal_from_Farm_to_Table/index.asp).
66. USDA APHIS. Dairy 1996 NAHMS Study, op. cit., 21.
67. USDA FSIS. Safety of Veal...from Farm to Table, op. cit.
68. Ibid.
69. Alverson D, Freeberg M, Murawski S, and Pope JG. 1996. A global assessment of fisheries bycatch and discards. FAO Fisheries Technical Paper No. 339, (Rome: United Nations Food and Agriculture Organization). [fao.org/DOCREP/003/T4890E/T4890E00.htm](http://fao.org/DOCREP/003/T4890E/T4890E00.htm).
70. Cetacean Bycatch Resource Center. [www.cetaceanbycatch.org](http://www.cetaceanbycatch.org). Accessed February 21, 2007.
71. U.S. Department of Agriculture Economic Research Service. 2004. U.S. seafood market shifts to aquaculture. *AmberWaves* April 2004. [ers.usda.gov/AmberWaves/april04/Findings/USSeafood.htm](http://ers.usda.gov/AmberWaves/april04/Findings/USSeafood.htm).
72. Cheeke P. 2004. *Contemporary Issues in Animal Agriculture* (Upper Saddle River: Pearson Education, p. 282).
73. Hastein T. 2004. Animal welfare issues relating to aquaculture. In: *Proceedings of the Global Conference on Animal Welfare: An OIE Initiative*. World Organization for Animal Health. February 2004, pp. 219-27.
74. Mench J, op. cit., 108-9.
75. Broom DM. 2000. Does present legislation help animal welfare? *Sustainable Animal Production: Workshops, Discussion, Online Resources*. [agriculture.de/acms1/conf6/ws5alegisl.htm](http://agriculture.de/acms1/conf6/ws5alegisl.htm).
76. Rollin BE. Farm factories. *The Christian Century*. [religion-online.org/showarticle.asp?title=2194](http://religion-online.org/showarticle.asp?title=2194).