NCC Poultry Welfare Guidelines: The reasons behind

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Delmarva Breeder, Hatchery and Grow-Out Conference
Salisbury, MD
September 14, 2005
Origin of the welfare debate

- European convention for the protection of animals kept for farming purposes (1978)
- European convention for the protection of animals kept for slaughter (1988)
- European directive for the protection of laying hens (1999)
- Proposal for council directive for the protection of chickens kept for meat production (May 5th, 2005)
Origin of the welfare debate

- PETA protest on meat consumption
Origin of the welfare debate

- Public awareness on animal welfare
- Eurobaromenter: Attitudes of consumers towards the welfare of farm animals (June, 2005)

  • 43% consider welfare most or some of the time when purchasing meat products.
  • 57% of consumers stated that they would be willing to pay a premium for eggs produced in a more welfare friendly system.
  • 63% consumers in Sweden and 61% in the UK buy eggs from free-range or outdoor systems (12% in Spain)
  • Which of the farm species needs the most improvement in welfare?
    - 44% Layers; 42% broilers; 28% pigs; 18% cattle; 17% Dairy
Origin of the welfare debate

U.S.A. consumers; Ohio State University (summer 2002)

- 81% agree that the well-being of farm animals is just as important as the well-being of pets.
- 75% agreed that farm animals should be protected from physical pain.
- More than 50% said that they would be willing to pay more for products labeled as coming from humanely treated animals (43% consumers would pay up to 10% more; 12% would pay up to 25% more).
Origin of the welfare debate

PETA: People for the Ethical Treatment of Animals

McDonald's

United Egg

National Chicken Council
Origin of the welfare debate

- Producers fear the economic impact

- The industry has done an excellent job at:
  - Improving health
  - Maximizing efficiency
  - Affordable poultry products
What is welfare?

- Welfare comprises many other aspects aside from animal health.

Animal health

Behavioral needs

Psychological aspects
Animal welfare is a state that encompasses many complex aspects of the animals and includes biological, psychological and ethical components.

- **Biological**
  - Physical, physiological & behavioral

- **Psychological**
  - How the animals feel

- **Ethical**
  - Quality of life

*Controversy*
Highly sensitive matter regarding public perception
Hatchery operations

- Humane culling of unviable chicks and pipped eggs
  - To avoid unnecessary pain and suffering of birds unlikely to thrive
  - Humane culling has to occur without causing animals avoidable fear, anxiety, pain, suffering and distress:
    - Produce the dead as fast as possible (maceration)
    - Produce unconsciousness fast and in a non-aversive manner ($CO_2$)
Hatchery operations

- CO₂ euthanasia pre-charged at 90%
  - To minimize stress during euthanasia
  - CO₂ not recognized as a humane method by the “Humane Slaughter Association”. CO₂ in concentrations higher than 40% can cause head shaking and gasping, indicative of it being unpleasant to inhale.
Control of climate and sanitation from hatching to delivery to assure maximum protection.

- Temperature in holding area 72F
- Alarm system
  - To avoid cold stress
  - Can have a long term impact on chick health and performance
Grow-out: Nutrition and feeding

- Birds should not have to travel more than 15 feet to reach a drinker or a feeder.
- Minimum 1 feeder/65 birds and 1 nipple/20
  - To maximize health and growth
  - Reduced availability of feeding and drinking space may result in bird competition which may impact growth, increase flock variability, injuries (scratches mainly) and stress.
Facility must be in good repair.

- To optimize control of environmental quality and to prevent bird injuries and accidents during rearing.

- Poor housing maintenance can lead to management problems, particularly important at high stocking densities.

- Bird injuries is a welfare concern, more over when it can be prevented by properly maintaining the facilities.
Ammonia levels should not exceed 25 ppm (goal 10 ppm)

- Threshold for human exposure
- To minimize negative impact on birds’ health

Proper ventilation, temperature and dust control

- Litter moisture not to exceed 35%
- Emergency ventilation system in place
Ammonia is a colorless, highly irritant, alkaline gas which is generated by microbial activity on faecal uric acid when the litter is moist.

Ammonia emissions in broiler houses are a welfare concern because it is toxic to animal cells.

May produce a serious threat to the health and welfare of the birds.
Main health & welfare effects associated with high ammonia levels include:

- High incidence of contact dermatitis: foot, hock and breast burns that can be a gateway for bacteria causing further health problems to the birds.
- Trachea & lung lesions which render the birds more susceptible to bacterial infections such as *E. coli* (Oyetunde et al., 1978).
- Eye irritation.
Other less prevalent problems:

• **Ascites** (Lopez Coello et al., 1985; Anthony et al., 1994). Terzich et al., (1998) found that the occurrence of ascites was directly correlated to ammonia levels.

• **Gastrointestinal irritation** (Pickrell, 1991).

• **Lameness** consequence of foot-pad dermatitis (Greene et al., 1985)
Effects on birds’ health

Ammonia levels and its consequences:

- 10 ppm: Trachea irritation (in turkeys).
- 20 ppm: Increase rate of infection of Newcastle disease vaccination.
- 25 ppm - 50 ppm: Air sac inflammation
- 50 ppm: Increased levels of keratoconjunctivitis.
- 100 ppm: Increased bird mortality
Effects on birds’ health

- Other welfare considerations:
  - Some of the above mentioned pathologies are known to be painful for the birds.
  - The frequency and severity of the lesions are highly dependent on the exposure time, therefore they are likely to increase with age of the birds.
  - Birds at high densities may be more susceptible to contact dermatitis due to poor plumage condition, and usually show a higher incidence and severity of hock and breast lesions.
Grow-out: Normal behavior

- Birds must be free to roam
- Stocking density not to exceed:
  - 6.5 Lb/ft² for 4.5 lbs live weight
  - 7.5 Lb/ft² for 4.5 to 5.5 lbs live weight
  - 8.5 Lb/ft² for 5.5 lbs live weight

The five freedoms (FAWC, 1979)
1- Hunger, thirst and malnutrition
2- Discomfort
3- Pain
4- Normal behavior (freedom to move)
5- Fear and distress
Effects of High Stocking Density:

- Reduced frequency of running and walking (RSPCA, 2005) as well as foraging and ground pecking (Blokhuys & Van dee Harr, 1990) and increase frequency of disturbances (Estevez et al., 1997; Cornetto et al., 2002).

- Reduced activity increases incidence of lameness (Sorensen et al., 2000) and can make them more susceptible to contact dermatitis (Weeks et al., 2000).

- Higher frequency of disturbances can increase incidence of skin scratches that may become infected.
Grow-out: Normal behavior

- Effects of High Stocking Density:
  - Reduced growth rate and poor gait scores (Dawkins et al., 2004).

Normal gait (photo by Berg)  Abnormal gait (photo by Berg)
Effects of High Stocking Density:

- Increased levels of heat, humidity, CO2, litter moisture and ammonia (Dawkins et al., 2004), which in turn produces a high incidence of skin lesions (breast blisters, hock burns; Arnould and Faure, 2004) and increased stress hormones. Mortality was related to humidity and temperature (Dawkins et al., 2004).
Grow-out: Normal behavior

How many are too many?

- 30 kg/m² (6.13 birds/ft²)
- 20 kg/m² (4.08)
- 34 kg/m² (6.94)
- 40 kg/m² (8.17)
- 38 kg/m² (7.76)
- 46 kg/m² (9.39)
- 25 kg/m² (5.10)
**Grow-out: Normal behavior**

- How many are too many?

- SOP companies
- Density
- Litter moisture
- Ammonia
- Breast blisters
- Hock and foot burns
- Skin lesions
- Stress hormones

30 kg/m² 34, 38, 42 and 46

(Dawkins et al., 2004)
Grow-out: Normal behavior

How many are too many?

Legislation for the protection of broiler chickens

30 kg/m² (6.13 birds/ft²)

38 kg/m² (7.76 birds/ft²)
Grow-out: Normal behavior

How many are too many?

- 6.5 Lb/ft² for 4.5 lbs live weight 31.8 kg/m²
- 7.5 Lb/ft² for 4.5 to 5.5 lbs live weight 36.7 kg/m²
- 8.5 Lb/ft² for 5.5 lbs live weight 41.59 kg/m²

Max. allowed by the future EU legislation 38 kg/m²
Negative effects passed 42 kg/m² (Dawkins et al., 2004)
Broilers should be able to walk

Lighting programs to manage growth rate (4 hr. dark period minimum)

- To minimize leg problems
- Responsible for 1.1% mortality and 2.1% of culls and downgrades (224 million birds affected; USDA, 1994)
- 20% of flock affected due to lameness (Gregory, 1998), and 75% have impaired walking ability (Sanotra et al., 2001)
- Low feed intake and feed conversion ($80 to $120 million/year losses to broiler producers; Morris, 1993)
Grow-out: Normal behavior

- Welfare considerations:
  - Leg problems are known to be painful.
  - Broilers reared with very long days had a higher incidence of culls and mortalities related to leg problems (Gordon and Tucker, 1995).
  - Existence of a dark period benefit skeletal development (Gordon, 1994).
  - Broilers reared in shorter days had lower incidence of leg abnormalities (Sorensen and Kestin, 1999) and better gaits (Freeman et al., 1981).
Lighting programs to manage growth rate (4 hr. dark period minimum)

- To minimize eye abnormalities and to maintain normal patterns of sleep.

- Birds reared on nearly continuous light have higher incidence of eye abnormalities (Whitley et al., 1984) that may appear as soon as 10 days old under continuous light (Lauber, 1991).

- Lack of sleep reduces the birds’ ability to cope with stressful conditions (Wiepkema, 1981), reduces the response of the immune system (Kirby and Froman, 1991) and are more fearful (Moller et al., 1999).
Charlie Arnot, chairman of the Animal Agriculture Alliance

"Public understanding of who we are and what we do continues to decline. As that understanding erodes, the gap between consumer knowledge and acceptance of industry practices grows."
Proactive attitudes!