The Scientific Case Against Foie Gras

Prepared by Prof. Ian Duncan

Photo Credit: Farm Sanctury

BCSPCA
SPEAKING FOR ANIMALS

Contents

About the Author

Dr. Ian Duncan, Professor Emeritus at the University of Guelph and University Chair in Animal Welfare, is a world-renowned expert in poultry welfare. Prof. Duncan was born and educated in Edinburgh, Scotland where he received an Honours degree in Agriculture from Edinburgh University before going on to complete a Ph.D. in poultry welfare with a focus on studying frustration in domestic fowl. With a career that began more than 40 years ago, Prof. Duncan was among the first people to bring a scientific approach to solving animal welfare problems. His research has focused primarily on animal behaviour as well as analyzing states of animal suffering such as fear, frustration and pain.

Prof. Duncan's research has involved 'asking' farm animals what they feel about the conditions under which they are raised through research techniques that assess animal preferences and motivation. He has published more than 150 papers and 20 books on various topics in animal behaviour and welfare. In 2007, Prof. Duncan joined the BC SPCA as a special advisor on farm animal welfare, and, in this position, he has advised the society on all farm animal welfare initiatives and has provided expert review of research in key areas. Today, he can still be found teaching his ever-popular and award winning course Principles of Animal Care and Welfare at the University of Guelph.

About the BC SPCA

The British Columbia Society for the Prevention of Cruelty to Animals is a registered charity dedicated to protecting and enhancing the quality of life for companion, farm, and wild animals in BC. Through its 36 branches across the province and its provincial office in Vancouver, the organization offers a range of direct care services for animals, including sheltering and adoption, wildlife rehabilitation, and cruelty investigations.

The BC SPCA also operates evidence-based programs that aim to proactively address animal welfare issues through public education, consultation with animal users, and advocacy for regulatory improvements. The BC SPCA's farm animal welfare department has developed credibility in this field and has recently contributed to the development of the national organic farming standards and Canada's Recommended Codes of Practice for the Care and Handling of Dairy Cattle. In 2002, the department launched the SPCA Certified program, a unique farm certification and food-labelling program, which provides marketing opportunities to farmers who meet higher standards of farm animal welfare.

EXECUTIVE SUMMARY

Foie gras means 'fat liver' and is a product based on the livers of ducks and geese that have been force-fed two to three times per day for a two to three week period. Ducks are now used much more commonly than geese, mainly for economic reasons. By the end of the force-feeding phase, each bird's liver expands to between six to 10 times the size of a normal duck liver. The majority of ducks raised for foie gras are kept in small individual cages or small barren group pens.

This report concludes that the practices used to produce foie gras seriously compromise the welfare of the ducks and geese used for the following reasons:

1. The force-feeding procedure is extremely unpleasant to the birds, as indicated by the avoidance behaviour they perform. This avoidance is likely in response to the stress of handling and the discomfort caused by inserting the feeding pipe, which can also cause painful injuries.
2. During the force-feeding phase, mortality rates are four to 20 times higher than on normal duck farms. These high rates are due to injuries to the throat, liver failure or rupture and to heat stress — all of which are directly linked to the force-feeding practice.
3. Most birds are kept in barren pens or cages that restrict their freedom of movement, cause painful injuries to their bodies, and prevent them from enjoying any natural behaviour.

This report recommends that the currently-employed housing and management practices used to produce foie gras be discontinued. The production of fatty duck and goose liver could be condoned only under the following conditions:

1. That any routine feeding method that causes stress or discomfort to the birds (such as force feeding) not be used.
2. That any induced increase in liver size or fat content does not impair liver function or result in pain or discomfort to the animal, or in increased mortality.
3. That only housing systems providing adequate space and permitting birds to engage in normal behaviour conducive to good welfare be used.

INTRODUCTION

In recent decades, consumers and chefs alike have become increasingly interested in the ethics of food production systems, including its impact on animal welfare and the environment.

Many chefs are now making commendable efforts in addressing these complex issues by supporting local farmers who grow produce in a sustainable manner or who raise farm animals according to high standards of care. Given that chefs hold a position of influence in the food system, they have played a key role in educating the public about products such as cage-free eggs, grass-fed beef, and free-range chicken.

Yet in this period of increased awareness, foie gras, which is primarily consumed in restaurants, is one dish that has remained controversial. This controversy is likely rooted in the conflicting information about foie gras that has been presented by different groups.

This document reviews the scientific evidence currently available on foie gras production methods with a critical eye. As such, this document offers a perspective that has not yet been provided. It is hoped that through an evidence-based approach, confusion surrounding foie gras can be allayed and long-term decisions about the production and sale of foie gras can be made.

The Animals

Foie gras means 'fat liver' and is a product derived from the livers of force-fed ducks and geese. Foie gras was traditionally produced using special breeds of geese; however, there has been widespread change to using ducks, mainly for financial reasons. Today, the breed of duck most commonly raised for foie gras production is the mulard (or mule) duck, which is a cross between a male muscovy duck and a female Pekin-type duck.

Each year, more than 20 million ducks and geese are raised worldwide for the production of foie gras. France has been – and continues to be – the largest producer of foie gras in the world. In 2007, more than 18 million ducks and geese were raised for foie gras in France alone. Significant production is also occurring in Hungary, Belgium and Spain. In Canada, Quebec is the only province where foie gras production is known to be occurring. It is estimated that hundreds of thousands of birds are raised for foie gras in Canada annually, on approximately 10 farms in Quebec.

Force-Feeding

The fatty liver is produced commercially by subjecting the birds to a period of force feeding, beginning when the birds are 12 weeks of age. The period lasts for 12 to 15 days for ducks and 15 to 21 days for geese. During this time, the birds are confined to either small individual cages or barren group pens where they are forcibly fed two to three times per day.

The feed, which consists of mashed maize and fat, is delivered using a funnel fitted with a long tube and either an auger or a pneumatic pump. The feeding pipe is typically 20 to 30 cm in length and is pushed down the birds' throat in order to deliver the feed directly into the crop or proventriculus (first stomach).

Intensive Production Systems

In recent decades, the foie gras industry has seen significant changes to its overall management, the equipment used, and increases to average flock size. Production has been intensified and automated to increase efficiency and profitability.

Worldwide, the modern foie gras industry involves very big flocks housed in large, dimly lit barns with rows upon rows of pens or cages. The large producers in Quebec report that they can forcibly feed up to 400 birds in one hour with few employees needed and produce 2000 fatty livers per week.

The large numbers of birds involved in the industry as well as the unique aspects of its production have generated interest among researchers and their work has revealed numerous welfare issues, which are discussed in the following sections.

ANIMAL WELFARE CONCERNS

The Force-Feeding Procedure

> Ducks avoid the force-feeding pen as well as the person who feeds them, indicating that the procedure is unpleasant to them.

Studies of bird behaviour provide evidence that the force-feeding process is stressful for the birds. Birds kept in pens during the force-feeding phase exhibit aversion behaviour (moving away from the handler or avoiding the entrance to the force-feeding area), which starkly contrasts the behaviour of normally raised birds in response to the opportunity to feed[1].

The same study showed that ducks would hide their heads inside the cage when the force-feeder walked by two to three hours after feeding. Ducks became more accustomed to this visit over the course of the experiment, likely because they learned that this post-feeding visit was not harmful to them.

The ducks also received a post-feeding visit by a stranger. The ducks avoided the stranger more than the force-feeder, which is to be expected, as an unfamiliar person poses a greater potential risk (death) than a familiar person, even when the familiar person has caused stress or pain to the bird.

Avoidance of the force-feeding process may be the result of stress associated with being handled or due to the discomfort felt during the insertion of the feeding pipe. In birds, the oropharyngeal area at the entrance to the esophagus is particularly sensitive and is adapted to perform a gag reflex[2]. Force-feeding overcomes this reflex likely causing considerable discomfort.

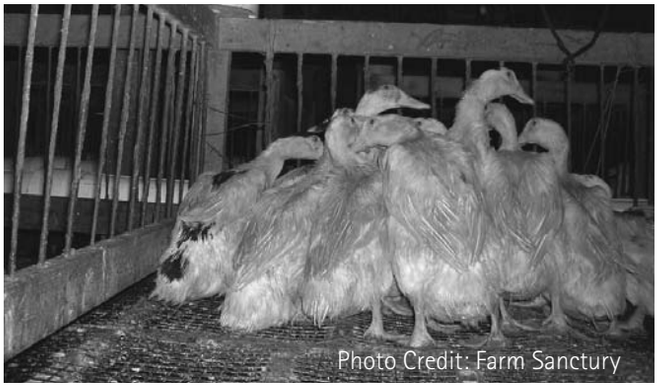
Photo Credit: Farm Sanctury

Force-feeding can also cause pain, injury and heat stress. While animal handlers claim to avoid actions that would cause tearing or splitting of the esophagus, such injuries do occur[2]. Researchers have also found evidence of inflammation in the walls of the proventriculus after the first session of force-feeding[3].

Immediately after force-feeding, ducks and geese can be seen shaking their heads. This is a common response to foreign or bad-tasting material in the mouth and is further evidence that force-feeding is aversive.

During the force-feeding phase, birds are commonly seen panting. The huge caloric intake at this time results in excessive heat production within the birds and panting is the birds' way of eliminating waste heat. Of course, in warm weather, the birds may not be able to sufficiently rid their bodies of waste heat and may die of heat stress.

An Unnatural Feeding Regime

> The feeding regime is not comparable to the voluntary gorging that migratory waterfowl perform.

One argument commonly put forward in defense of foie gras is that force feeding is an acceptable practice since ducks and geese will naturally gorge themselves in preparation for migration. While it is true that some strains of birds will naturally increase food consumption in preparation for migration, this argument does not hold for the mulard, the strain of duck most commonly used in the production of foie gras.

The mulard duck is a cross between a muscovy duck and a domestic duck. The muscovy duck is a tropical breed that does not migrate and only occasionally flies for short distances.[4,5] Domestic ducks originate from the mallard, but only some strains of wild mallards will migrate and only in some circumstances.[6] Therefore, it is very unlikely that the mulard cross breed would be evolutionarily adapted to cope with the physical strain of digestive engorgement, the physiological effects of a fatty liver, or the stress of the insertion of the feeding pipe.

With regard to geese, many domesticated strains have a migratory background and have evolved to store food for the long journey.[2] However, it must be noted that during the intensive force-feeding process used to produce foie gras, this adaptation is exploited well beyond what would occur in nature.

Birds raised for foie gras are forcibly fed quantities of food well beyond what they would voluntarily eat. On the first day of the force-feeding period, ducks are typically fed two daily meals each of 190 g of feed. The amount of feed given in each meal is increased daily until the end of the two-week period, when each meal amounts to 450 g of feed.[2]

This represents a daily feed ingestion of about five times what would be fed as part of a feeding regimen for conventional meat ducks. Studies show that when force feeding ceases, ducks will reduce food intake for several days. At the end of the force-feeding period, the birds struggle to walk or even stand, and would therefore not likely survive migration in this state.

Barren and Confining Housing

Caged housing prevents ducks and geese from performing natural behaviour that is essential for their physical and psychological health, and causes painful skin injuries.

Today, birds involved in the production of foie gras are kept in individual cages or small group pens during the force-feeding phase. While such housing systems facilitate efficient food delivery, they severely restrict the birds' freedom of movement and prevent the birds from carrying out natural behaviour that is essential for their physical and psychological health.

Cages also commonly cause painful injuries and inflammation of the feet and breasts. The prevalence of sternum lesions, caused by continuous rubbing against the front of the cage, is between 40 and 70 per cent.[2]

Individual cages prevent the most basic movements such as turning around and wing flapping, but group pens also severely restrict the birds from engaging in important natural behaviour.

Photo credit: Global Action Network

Modern strains of ducks and geese, though domesticated, have retained many of the behaviour patterns of their wild ancestors[7, 8, 9]. Ducks and geese are inquisitive, social animals, and, in the wild, will spend much of their time exploring their environment and foraging for food. As waterfowl, these birds are also strongly motivated to perform water-related activities, such as bathing and swimming. These behaviours are important both to satisfy their natural drives and to maintain their physical health, by maintaining hygiene of their eyes and feathers.

Several researchers have found that Muscovy ducks and other domesticated duck species are highly motivated to bathe and will work harder to gain access to troughs or open water sources that allow them to bathe than to nipple drinkers that only provide water to drink[10,11].

Force feeding causes serious health problems, including impairment of liver function and extremely high mortality.

Mortality and Disease

Extensive studies on mortality rates in flocks of foie gras ducks have been carried out in France, Belgium and Spain. These data indicate that mortality rates in the force-feeding period are four to 20 times as high as they are in non-force-fed flocks of the same age. In non-force-fed flocks, average mortality is 0.1% per week for flocks at 12 weeks of age. In force-fed flocks, the average mortality is between 0.5% and 2% per week for birds this age[12,13, 2].

The main causes of this high mortality include: injuries to the throat, liver failure or rupture and heat stress[13]– all of which are directly linked to the practice of force-feeding.

Force feeding causes several changes in the chemical composition of the liver, including the percentage of fat, protein and water. As well, it causes a significant increase in the relative size of the organ – in fact, by the end of the force-feeding period, the birds' liver is seven to 10 times the size of a normal liver. The average weight of a liver in a force-fed duck is 550 to 982 g, with a fat content of 55.8%. In comparison, the average weight of a liver of a properly fed duck is 76 g, with a fat content of 6.6%[14].

These changes result in impaired liver function due to decreased blood flow through the liver and other physiological effects[15,2]. The changes also mean that the liver is at high risk of rupturing when the birds are handled during force-feeding and during transportation at the end of their lives.

CONCLUSIONS & RECOMMENDATIONS

This report concludes that the practices used to produce foie gras seriously compromise the welfare of the ducks or geese used for the following reasons:

1. The force-feeding procedure is extremely unpleasant to the birds, as has been evidenced by their avoidance of the force-feeding area and the person who feeds them. This avoidance is likely in response to the stress of handling and the discomfort caused by inserting the feeding pipe, which can also cause painful injuries.
2. During the force-feeding phase, mortality rates are four to 20 times higher than in flocks of the same age on normal duck farms. These high rates are due to the injuries to the throat, to liver failure or rupture, and to heat stress – all of which are directly linked to the force-feeding practice.
3. Most birds are kept in barren pens or cages that restrict their freedom of movement, cause painful injuries to their bodies, and prevent them from enjoying any natural behaviour.

The author recommends that the currently-employed housing and management practices used to produce foie gras be discontinued. The production of fatty duck and goose liver could be condoned only under the following conditions:

1. That any routine feeding method that causes stress or discomfort to the birds (such as force feeding) not be used.
2. That any induced increase in liver size or fat content does not impair the function of the liver or result in pain or discomfort to the animal, or in increased mortality.
3. That only housing systems providing adequate space and permitting birds to engage in normal behaviour conducive to good welfare be used.

REFERENCES

[1] Faure, J.M, Guemene, D., Guy, G. 2001. Is there avoidance of the force-feeding procedure in ducks and geese? Animal Research.50.

[2] European Food Safety Authority. 1998. Scientific Commmittee on Animal Health and Animal Welfare. Welfare Aspects of the Production of Foie Gras in Ducks and Geese.

[3] Serviere, J, Bernadet, MD, and Guy, G. 2003. Is nociception a sensory component associated to force-feeding? Neurophysiological approach in the mule duck. 2nd World Waterfowl Conference, Alexandria, Egypt.

[4] Hoffman, E. 1992a. A natural history of Cairina moschata, the wild Muscovy duck. 9th International Symposium of Waterfowl, Pisa, Italy, World Poultry Association. 217.

[5] Hoffman, E. 199b. Hybrid progeny from Muscovy and domestic ducks. 9th International Symposium of Waterfowl, Pisa, Italy, World Poultry Association. 64.

[6] Bellrose, FC. 1980. Ducks, geese and swans of North America. Harrisburg, PA: Stackpole Books.

[7] Desforges, MF and Wood-Gush, DGM. 1975a. A behavioural comparison of domestic and mallard ducks: Habituation and flight reactions. Animal Behaviour. 23: 692.

[8] Desforges, MF and Wood-Gush, DGM. 1975b. A behavioural comparison of domestic and mallard ducks: Spatial relationships in small flocks. Animal Behaviour. 23: 698.

[9] Desforges, MF and Wood-Gush, DGM. 1976. A behavioural analysis of Aylesbury and mallard ducks: . Animal Behaviour. 24: 391.

[10] Cooper, JJ, McAfee, L and Skinn, H. 2002. Behavioural responses of domestic ducks to nipple drinkers, bell drinkers and water troughs. British Poultry Science .43: S17-S18.

[11] Ruis, MAW, Lenskens, P and Coenen, E. 2003. Welfare of Pekin-ducks increases when freely accessible open water is provided. 2nd World Waterfowl Conference, Alexandria, Egypt. 17.

[12] Koehl and Chinzi. 1996. Les résultats technico-économiques des ateliers de palmipèdes a foie gas de 1987 à 1994. 2ème journées de la recherche sur les palmipèdes à foie gras. 75.

[13] Chinzi , D and Koehl, PF. 1998. Caractérestiques desateliers d'élevage et de gavage de canards et mulards. Relations avec les performances et techniques et économiques. Proceedings des 3ème journées de la recherche sur les palmipèdes à foie gras. 107.

[14] Babile R, Auvergne A, Dubois JP, Bénard G, Manse H. 1998. Réversibilité de la stéatose hépatique chez l'oie. 3ème journées de la recherche sur les palmipèdes à foie gras. 45.

[15] Bengone-Ndong T. 1996. Contribution à l'étude des conséquences du gavage de canards sur le devenir des xénobiotiques. Thèse Institut National Polytechnique, Toulouse.

Prepared by:

Prof. Ian Duncan, Special Advisor on Farm Animal Welfare
Caroline Ramsay, B.Sc. (Ag) Farm Animal Welfare Coordinator*
Geoff Urton, B.Sc. (Ag) M.Sc., Animal Welfare Coordinator*

*** Corresponding authors**

BC SPCA Farm Animal Welfare

1245 East 7th Avenue
Vancouver BC V5T 1R1

Email: farminfo@spca.bc.ca
Tel: 604.681.7271
Fax: 604.681.7022

www.spca.bc.ca/foiegras