

An HSUS Report: The Welfare of Animals in the Turkey Industry

Abstract

The natural behavior and habitat of wild turkeys stand in sharp contrast to the life of turkeys commercially produced for meat. Overcrowded in automated, barren poultry houses, the birds are offered little opportunity to display their full range of complex social, foraging, and exploratory behaviors. Today's commercial turkeys grow at an unnaturally rapid pace to unprecedented weights. This forced rapid growth further compromises their health and welfare, and causes them to suffer from skeletal, muscular, and other health problems, as well as painful and often crippling leg disorders. Breeding stock, unable to mate naturally due to genetic selection for fast growth and excess breast muscle (meat), must be continuously feed deprived in order to control weight. The catching, transport, and slaughter of turkeys subjects them to stress, injury, and pain. Each of these issues is a highly significant welfare problem in need of address.

Introduction

Native to North America, turkeys were first domesticated more than 2,000 years ago in Mexico and South America. In 1910, the U.S. turkey industry was comprised of 870,000 farmers raising 3.7 million turkeys, an average of four birds per farm.¹ Turkeys were typically free-ranging and experienced a varied, complex environment that allowed them to display normal behavior patterns. In 2006, over 255 million turkeys were slaughtered in the United States,² and more than half were raised under contract for just three companies.³

Natural Turkey Behavior

Turkeys in the wild show behavior that is complex, adaptive, and intelligent. Turkey hens are devoted mothers and care diligently for their young, with broods staying together for four to five months and male siblings remaining as a social unit for life.⁴ Poults (young turkeys under four weeks of age) learn what to eat, how to avoid predators, the geographical topography of the home range, and important social behavior from the hen.⁵ During the day, the birds forage together in brush, fields, and wooded expanses, using their beaks to explore and manipulate their environment; by night, they roost high in trees. The size of turkey broods' home range varies, but can be as large as 500 acres.⁶ Turkeys develop a sophisticated social structure, small social groups with stable dominance hierarchies, and remember individuals within their own group and in neighboring flocks.^{7,8}

Selective Breeding for Rapid Growth and Heavy Body Weight

Domesticated turkeys have been artificially selected to grow efficiently and reach much heavier weights than their wild counterparts in exceedingly shorter periods of time. Male wild turkeys grow from approximately 1.8 ounces at hatch to 7.7 pounds in about 4 months.⁹ In contrast, turkeys commercially raised for meat grow to over 25 pounds in the same amount of time.¹⁰ Hens are now marketed at 16 weeks at approximately 15 pounds, and toms are marketed at 17 to 18 weeks when they reach 27.5 pounds.¹¹ Rapid growth and heavy body weight compromise the health of turkeys by leading to painful leg problems (see below), muscle damage,¹² cardiovascular problems, increased susceptibility to disease,^{13,14,15,16} and focal ulcerative dermatitis (small skin lesions commonly called "breast blisters"), which develop on the keel bone.¹⁷ The link between selection for heavy

body weight and incidences of leg abnormalities and cardiovascular problems, as well as impaired immune system development, is recognized by turkey breeders and thought of as a challenge that must be addressed on the road to the “biological maximum.”¹⁸

Leg Disorders

Rapid growth and heavy body weight stress bones, joints, ligaments, and tendons, and result in such leg problems as tibial dyschondroplasia, lesions in the hip joint (epiphyseal ischemic necrosis), and angular bone deformity (valgus-varus deformity).^{19,20,21,22} Avulsion (rupture) of tendons or ligaments in the hock may also occur.^{23,24} One study found that between 4 and 13 percent of turkeys exhibit severe gait abnormalities that hinder walking ability.^{25,26} Another report estimated that a 5-percent mortality rate due to lameness is normal in heavy toms, with up to 20-percent mortality caused by lameness in problem flocks.²⁷ Turkeys may become so affected by leg problems that they go “off their legs,” becoming too crippled to walk.²⁸ Except for one study,²⁹ experiments assessing pain have shown that leg problems of poultry are indeed painful.^{30,31,32,33,34} Explains Scott Beyer, Poultry Specialist at Kansas State University, “Although a small percentage of birds may be predisposed to leg problems, use of highly selected fast-growing strains is recommended because savings in feed costs and time far outweigh the loss of a few birds.”³⁵

Intensive Production

Industrial animal agriculture is mechanized, highly automated, and guided by principles of production efficiency, and the overwhelming majority of turkeys raised in the United States are reared in intensive confinement facilities. Like other types of poultry production, turkeys are typically confined indoors in large brooding and growing houses, usually windowless, with artificial light and ventilation. The environment is barren and crowded compared to the wild turkey’s varied and complex natural habitat, and contains only litter covering the floor and an automated feed and water supply.

As many as 10,000 birds may be confined per house at a stocking density of two and one-half square feet per hen or four square feet per tom.^{36,37} And, as turkeys grow and begin to approach market weight, floor space becomes limited. The result is that the turkeys increasingly step on each other as they maneuver through the crowded shed. The high stocking densities lead to deterioration in litter quality, which is associated with leg problems and resultant difficulty walking, and hip and foot-pad dermatitis.³⁸ Industrial turkey production accepts mortality rates of 7 to 10 percent.^{39,40}

In overcrowded sheds largely devoid of meaningful stimuli, there is no opportunity for turkeys to explore, forage, roost, or form normal social groups. Naturally, turkeys display considerable beak-related behavior,⁴¹ and wild turkeys would normally spend 86 to 95 percent of their daily time budget foraging.⁴² Scientists have postulated that the lack of outlets in industrial turkey production for normal, investigative pecking and foraging lead to abnormal behaviors, including feather pecking and cannibalism.^{43,44,45}

Commercial Poultry Processing

Before they are moved into growing houses, turkeys are hatched by the thousands in large incubators where temperature and humidity are tightly controlled. At the hatchery, turkey poults are “processed,” undergoing procedures that include some or all of the following: desnooding (slicing off the fleshy protuberance over the bird’s beak), toe clipping, and beak trimming (also called partial beak amputation). Toe clipping (also referred to as de-toeing) with surgical shears⁴⁶ is practiced to prevent scratching and subsequent carcass downgrading, yet the practice is associated with reduced growth rate⁴⁷ and higher early mortality.⁴⁸ Turkeys are routinely beak-trimmed both to prevent outbreaks of abnormal cannibalistic behavior (see below) and to reduce the impacts of stress-induced aggression. Sharp secateurs, a heated blade, or a high voltage electric current is used to remove one-third to one-half of the birds’ beaks.^{49,50} Bird beaks are highly sensitive and innervated,⁵¹ and when portions

of the beak is removed, bone and nerves are severed. Beak trimming is painful,^{52,53} but current science suggests that turkeys may differ from chickens in that while they do experience pain, there may not be chronic pain due to neuroma formation.⁵⁴

Although these mutilations are meant to prevent later injury, they are highly significant welfare problems in themselves, as Dr. Ian Duncan, professor emeritus at the University of Guelph explains. “All these ‘elective surgeries’ involve pain, perhaps chronic pain. No anesthetic is ever given to the birds. These mutilations are crude solutions to the problems created by modern methods of raising chickens and turkeys.”⁵⁵

Injurious Pecking and Intensive Production

Reared in overcrowded, barren environments without mental stimuli, adequate space, or the ability or means by which to perform most natural behaviors, turkeys in commercial production may injure one another. Indeed, injurious pecking is a problem for the turkey industry and can lead to cannibalism that can spread throughout a flock. To prevent this problem, most turkeys are beak-trimmed, as discussed above, and raised in low light, which curbs the initiation and spread of this stress- and frustration-induced behavior. However, cannibalism remains a concern for turkeys raised in natural or high-intensity lighting, such as those animals reared in extensive systems with access to the outdoors and breeding stock who are kept under light conditions that promote egg production.

Lack of Individual Care

Using automated feed, water, and environmental control, a single stockperson may be responsible for the care of 30,000 birds.⁵⁶ Sick or injured individuals undoubtedly go unnoticed. Although veterinary services are utilized by turkey producers, the emphasis is on the health of the flock as a whole, and individual care for each bird is impossible. When sick or injured birds are found, they are typically culled (killed). Dr. Martrenchar of the Centre National d’Etudes Veterinaires et Alimentaires of Ploufragan, France, described the process thusly: “In practice, stockmen may use cervical dislocation or the crushing of the head or vertebrae by striking the birds against a wall or with an object. These methods are not satisfactory and research is required on alternative procedures such as overdosing with barbiturates or exposure to gas.”⁵⁷

Air Quality

In crowded poultry houses, air quality is diminished with build-up of dust and ammonia concentrations. While stockpersons are exposed to poor air quality for short periods of time, turkeys remain in this environment continuously. High ammonia levels are associated with a number of health problems in birds,⁵⁸ including physical damage to the respiratory tract, keratoconjunctivitis, and increased susceptibility to bacterial infection. Poor ventilation is also associated with foot-pad dermatitis.⁵⁹ As C.M. Wathes of the Silsoe Research Institute describes, “The air of a poultry house seethes with a disease miasma of gases, dusts and micro-organisms that arise from the birds themselves, their feed, droppings and the litter. The high concentration of aerial contaminants is a direct consequence of high stocking densities and slow ventilation rates which help to maintain a warm building temperature.”⁶⁰

Turkeys have a heightened olfactory sense. According to Wathes: “For a bird with an acute sense of olfaction the polluted atmosphere of a poultry house may be the olfactory equivalent of looking through dark glasses.”⁶¹

Lighting

Lights are dimmed in poultry houses in order to reduce feather-pecking behavior. However, low light levels (1 to 7 lux) are also a welfare concern. Research has shown that turkeys find low light aversive,⁶² and that they prefer brighter environments.⁶³ Additionally, it is difficult for stockpersons to inspect the flock when the light is

low, and sick or injured birds who should be separated or euthanized may be overlooked. Nearly continuous lighting—23 hours in a 24-hour period—is the industry norm. Lengthened light periods encourage birds to eat more, thus improving growth, but the practice is associated with an increased incidence of leg problems in birds raised for meat.^{64,65}

Litter

Turkeys are usually housed on litter made of wood shavings. Sheds are not cleaned of excrement, feathers, debris, and litter during the lifetime of a flock, and perhaps not even after depopulation. If management is poor and turkeys must sit, stand, and lie in wet, soiled litter, they may develop breast blisters and foot ulcers.^{66,67,68} Wet or sticky litter can also lead to “shaky-leg syndrome,” a severe lameness characterized by reluctance to stand and walk.^{69,70} One study found that more than 45 percent of turkey flocks scored at slaughter had a greater than 10 percent incidence of severe foot-pad lesions.⁷¹ These problems can be alleviated by proper litter conditions and lighting programs.

Breeding Turkeys

Separate operations are required for raising parent stock, breeding turkeys who produce fertile eggs. Male breeding turkeys of fast-growing, breast-heavy, commercial strains are so large that they cannot mate naturally without harming the female. As a result, most turkeys are bred using artificial insemination (AI). According to the Merck Veterinary Manual, “Collecting semen from a chicken or turkey is done by stimulating the copulatory organ to protrude by massaging the abdomen and the back over the testes. This is followed quickly by pushing the tail forward with one hand and, at the same time, using the thumb and forefinger of the same hand to ‘milk’ semen from the ducts of this organ.”⁷² Hens are then inseminated by applying pressure to the abdomen around the vent, causing the oviduct to protrude “so that a syringe or plastic straw can be inserted ~1 in. (2.5 cm) into the oviduct and the appropriate amount of semen delivered.”⁷³ Although turkey hens may display maternal broodiness, the natural desire to nest and incubate, their eggs are removed and hatched artificially.

Breeding turkeys must be feed-restricted to control their body weight and improve fertility. However, feed restriction is stressful, as demonstrated by the measurable rise in the stress hormone corticosterone,⁷⁴ and results in chronic hunger.⁷⁵

When commercial breeding hens go out of egg production, they may be force molted in order to bring them back into reproductive condition. Force molting is induced by placing the hens in a completely dark house and removing all food and water for 72 hours. Feed and water are returned gradually. This deprivation of food, water, and light induces an additional egg-laying cycle in the hens.⁷⁶

By the end of their breeding productivity, most turkeys have abnormal gait or are lame due to leg problems.⁷⁷ Breeding birds are prone to antitrochanteric degeneration (destructive cartilage loss in the hip joint), a condition that causes chronic pain.⁷⁸ Once their productivity wanes, the birds are slaughtered.

Catching, Crating, and Transport

After turkeys reach market weight, the birds are “harvested”—caught and crated for transport to the slaughter house. Dr. Martrenchar describes the process of removing the turkeys from the grower house to the transport vehicle: “Generally, birds are caught by one or both legs and then forcibly pushed to the rear of the crates in order to make space for the next birds. During this procedure the heads or wings of the birds often knock against the solid sides of the crates.”⁷⁹ Heart rate measurements suggest that catching and crating using conventional methods are stressful.⁸⁰ There are reports of severe injuries to the birds as they are loaded for transport, including bruising,^{81,82,83} wing fractures, heads hit on the side of transport crates as they are loaded, tails caught as crates are closed, and amputated toes,⁸⁴ leg fracture, avulsion (rupture) of tendons in the hock,⁸⁵ and

leg edema.⁸⁶ Turkey carcasses are often trimmed and downgraded during processing at the slaughterhouse due to bruises, fractures, and dislocated joints sustained on the farm or during transport.^{87,88} Inappropriate handling is the main reason that heavy turkey carcasses are damaged.⁸⁹

Some producers are moving toward more automated systems that involve loading the turkeys using a conveyer belt.^{90,91} This is a promising method that may improve turkey welfare at harvest in the future.

Following crating, turkeys may be transported over long distances to the slaughterhouse, during which time they are exposed to unfamiliar experiences, such as noise, acceleration and vibration associated with the transport vehicle, and extremes of heat and cold. One survey found that turkeys may spend as long as 18 hours in transit before arriving at the abattoir,⁹² although the average journey may be much shorter. It is standard practice in commercial poultry production to deprive birds of food and water during catching, crating, transport, and while being held in lairage as they await slaughter. This is done in order to prevent contamination of the carcass with the contents of the lower intestine. Invariably, some turkeys will arrive at the slaughterhouse dead. One estimate of the dead-on-arrival (DOA) rate for turkeys is 0.38 percent.⁹³ Although less than one-half of a percent may seem negligible, extrapolation across all U.S. turkey production suggests otherwise: 255 million turkeys were slaughtered in 2006, calculating to more than 969,000 turkeys who died that year during crating and transport for slaughter.

Slaughter

Although the Humane Methods of Slaughter Act requires that animals be rendered insensible prior to shackling and slaughter, the law is currently interpreted in such a way as to exclude turkeys and other birds. Upon arrival at the slaughter house, turkeys are unloaded from transport crates, inverted, and hung upside-down on shackles that pass over an electrified water bath. The process of inversion and shackling is both stressful^{94,95} and painful,⁹⁶ and their wings may become bruised if the birds flap while being hung.⁹⁷ The birds are given a high-voltage electric shock that is designed to render them unconscious and immobile while their necks are cut. However, when shackled turkeys are conveyed through the water bath, they may experience electric shocks before they are stunned into unconsciousness, because their wings, hanging lower than their heads, may touch the water before their heads are submerged.^{98,99} Additionally, not all birds are stunned adequately prior to exsanguination^{100,101} and are conscious while their throats are cut. In 2006, nearly 50,000 turkeys were condemned under the “cadaver” category of the U.S. Department of Agriculture’s (USDA’s) annual poultry slaughter report.¹⁰² According to the USDA’s Food Safety and Inspection Service poultry slaughter inspection training guide, “Poultry that die from causes other than slaughter are condemned under the cadaver category. These birds are not dead when they enter the scald vat. When submerged in the hot water, they drown....”¹⁰³

Innovations in turkey slaughter processes have been gaining popularity. The use of gas in Controlled Atmosphere Stunning (CAS) and Controlled Atmosphere Killing (CAK) systems, rather than passing turkeys’ heads through electrified water baths, are in use by some processing plants in the United States¹⁰⁴ and Europe,¹⁰⁵ and these efforts should be commended for improving the animals’ welfare.

Conclusion

Animal agriculture is beginning to respond to the public’s demand for more humane animal care, transport, and slaughter. However, as in other sectors of the animal production industry, major animal welfare issues remain to be addressed in the turkey industry. Selective breeding for rapid growth and heavy weight compromises the health and well-being of turkeys, while overcrowded, barren housing conditions that are devoid of meaningful stimuli compromise behavioral opportunities, lead to outbreaks of abnormal behavior, and cause physical and psychological suffering. Breeding birds are routinely food deprived to manage weight gain. Transport and slaughter remain, at best, stressful experiences. These are serious issues endemic to the industry and responsible husbandry mandates that they must be prioritized above production efficiency and economic interests.

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