



2008

Animal Care Best Management Practices for the Production of Turkeys

NTF published its first guidelines on the care of turkeys in 1990 and has continued to update its members with new information ever since. NTF has developed Animal Care Best Management Practices (AC-BMP) to encourage humane production and slaughter practices. The BMP manuals provide the industry with the tools needed to make improvements with the current state-of-the-art practices and to set the stage for enhancement in the future.

Turkey producers are very attentive to the birds' needs and use humane processes while still providing high-quality, economical, safe and wholesome turkey products for consumers. With a long-term view, improvements can and should be accomplished without causing significant economic disruption to our nation's food production system.

The AC-BMP manual has been developed with today's best information and it must be updated continually in a dynamic way to make sound improvements as new knowledge emerges. Not all the guidelines in the AC-BMP are directly related to animal well-being. Many production practices vary with technological and genetic improvements or deficiencies, and many should not be measured for performance verification. The Audit Checklist includes only measurable or observable elements of control that directly verify animal well-being.



Production Guidelines

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Contact:

National Turkey Federation
1225 New York Avenue, NW
Suite 400
Washington, DC 20005
Phone: 202/898-0100
Fax: 202/898-0203

Table of Contents

Background and Introduction	2
Purpose and Objectives	2
Distribution of the ACG	2
Animal Care and Well-Being Organizations	2
Allied Food Industry Groups	2
Governmental Regulation - Agencies	2
Governmental Regulation - Regulations	2
Government Authority Over Animal Care in Livestock	3
Compliance Auditing of ACG	3
Monitoring and Feedback Responsibility	3
Food Safety Best Management Practices for the Production of Turkeys (FS-BMP)	4
Animal Care Guidelines for Turkey Production	4
ACG – A Dynamic Ongoing Process	4
Reference Information	4
Figure 1. Turkey Hatching – Module B Flow Chart	2
Figure 2. Turkey Production and Grow-Out – Module B Flow Chart	11
Appendix A: Control Points	12
CP 1 Farm Safety and Security	13
CP 2 Flock Scheduling	13
CP 3. Biosecurity and Disease Control	14
CP 4. Building Facilities and Equipment Design	15
CP 6 Personnel Training	17
CP 7 Hatched Poult Harvesting	18
CP 8 Poult Delivery	18
CP 9 Feed and Water Supply	20
CP 10 Environmental Control and Bird Comfort	23
CP 11 Brooding and Growing	27
CP 12 Cull Bird Disposal	27
Appendix B – Monitoring and Feedback	29
M 1. Bird Handling Observation	29
M 2. Bird Mortality, Morbidity and Injuries	29
M 3. Culling and Humane Euthanasia	29
M 4. Environmental Observation	30
M 5. Disease Incidence	30
M 6. Health Check Evaluation	31
M 7. Production and Performance Records	32
M 8. Sample Bird Weights	32
M 9. Accuracy of Procedures	35
M 10. NTF Animal Care Forms and Reports	35
Industry Performance Goals	46
Space Requirements	46

Background and Introduction

1. Purpose and Objectives

Animal Care Guidelines for the Production of Turkeys (ACG) is a companion document to *Food Safety Best Management Practices for the Production of Turkeys* (FS-BMP). It provides guidelines for turkey production to ensure that turkeys produced and slaughtered for food in the United States are produced and processed in a humane manner.

2. Distribution of the ACG

- a. Members and affiliates of NTF can access the ACG on the NTF website.
- b. Allied and commodity groups whose interest includes the care of food animals.
- c. Organizations providing input and expertise on care requirements for food animals.
- d. Groups and agencies representing and informing the consuming public on animal care.

3. Animal Care and Well-Being Organizations

- a. Animal Agriculture Alliance (Alliance)
- b. American Registry of Professional Animal Scientists (ARPAS)
- c. American Veterinary Medical Association (AVMA)
- d. Federation of Animal Science Societies (FASS)
- e. Poultry Science Association (PSA)
- f. American Association of Avian Pathologists (AAAP)

4. Allied Food Industry Groups

- a. Food Marketing Institute (FMI)
- b. National Council of Chain Restaurants (NCCR)

5. Governmental Regulation - Agencies

- a. Environmental Protection Agency (EPA)
- b. Food and Drug Administration (FDA)
- c. Center for Veterinary Medicine (CVM) of the FDA
- d. United States Department of Agriculture (USDA)
- e. Food Safety Inspection Service (FSIS) of the USDA
- f. Animal Production Food Safety (APFS), a voluntary program of FSIS

6. Governmental Regulation - Regulations

- a. Federal Food, Drug and Cosmetic Act, and the Delaney Clause
- b. Federal Fungicide, Rodenticide and Insecticide Act (FIFRA)
- c. Animal Medication Drug Use Clarification Act (AMDUCA)

- d. Animal Drug Availability Act (ADAA)
- e. Egg Products Inspection Act
- f. Federal Meat Inspection Act
- g. Poultry Products Inspection Act

7. Government Authority Over Animal Care in Livestock

- a. Federal and state regulations related to the health and well-being of agricultural animals varies. Most states do not to oversee the welfare of animals. However, cruelty to farm or companion animals is generally covered under state or local laws and action is usually taken in response to specific complaints. States do control the spread of particular diseases.
- b. The Animal Welfare Act, 7 U.S.C. 2131-2156, is the principal law protecting the welfare and well-being of animals: however, animals raised for food or fiber are specifically excluded from the Animal Welfare Act.
- c. The Humane Methods of Livestock Slaughtering Act of 1958 provides for humane slaughtering and handling livestock in connection with slaughter. It does not extend to animals while on the farm, and does not include poultry.
- d. Two agencies within USDA—Animal and Plant Health Inspection Service (APHIS) and Food Safety Inspection Service (FSIS)—have veterinarians and technical staff working specifically with livestock on the farm and in the slaughterhouse, but they have no authority or responsibility in the area of animal well-being, with the exception of red-meat slaughter (item 7b).

8. Compliance Auditing of ACG

- a. Turkey growing operations are regularly visited and monitored by field service personnel who are not employed by the grower. This provides an effective and efficient way to implement third-party compliance auditing.
- b. These guidelines provide forms to use in a Monitoring Plan and Auditing Checklists to measure and assess compliance on a continuous basis.
- c. Monitoring programs must be specific for and tailored to the individual operation.
- d. Monitoring and auditing results are important because they provide a feedback mechanism within each operation and provide direction for the development of corrective action and programs for continuous improvement. This process must create a positive response within the operation.
- e. Monitoring and auditing information is proprietary and should be held in confidence and in control of the production firms.

9. Monitoring and Feedback Responsibility

- a. Monitoring and auditing of production practices affecting the well-being of food producing animals should be done by a veterinarian or poultry scientist with expertise in turkey management. The auditor may need the assistance of consultants with relevant expertise if unexpected situations are encountered. This activity should provide feedback in an accurate way to ensure a positive response

and improvement in the overall company operation.

- b. Knowledge of biosecurity practices in each live operation is essential for a person making visits. The spread of disease by any visitor can cause bird illness and/or death as well as an economically catastrophic loss.

10. Food Safety Best Management Practices for the Production of Turkeys (FS-BMP)

- a. The FS-BMP Manual is organized in modules.
- b. FS-BMP Modules are set up with flow charts of the steps and activities involved in turkey production so that the HACCP Model can be applied in some fashion and Control Points (CP) can be pinpointed and identified for each step in the process. Then Monitoring Feedback (MF) activities can be developed for each CP.
- c. The FS-BMP modules are:
 - 1) Module A: Foundation and Multiplier Breeding
 - 2) Module B: Commercial Hatching
 - 3) Module C: Meat Production and Grow-Out
 - 4) Module D: Live-haul
 - 5) Module E: Feed Manufacturing and Delivery

11. Animal Care Guidelines for Turkey Production

- a. The ACG Manual is organized in modules in concert with the FS-BMP Manual. However, only the first four of the five FS-BMP modules correspond directly to AC-BMP modules. Module E of the FS-BMP deals with feed manufacturing and delivery while Module G of the ACG deals with the processing plant. (The letter “G” was used to avoid confusion.)
- b. Each Module of the ACG has a flow chart similar to the FS-BMP modules with control points at each step. Each CP has specific Monitor/Feedback activities or auditing activities identified.

12. ACG – A Dynamic Ongoing Process

- a. The development of ACG is an evolving, dynamic ongoing process. ACG must be up-to-date and reflect the state-of-the-art in livestock production. Industry methods of animal production change as new information, genetics and innovations are developed and adopted, and must be addressed with respect to animal care.
- b. Each operation should incorporate appropriate new information and techniques as they evolve and make decisions based on the NTF-BMP.
- c. An industry-wide review and update should be scheduled at three-year intervals.

13. Reference Information

a Organizations:

- 1) *Animal Agriculture Alliance* – (Alliance) Membership includes both associations and corporations. The Alliance supports and promotes animal agriculture

practices that provide for farm animal well-being through sound science and public education. The Alliance provided funding for development of the “Animal Care Principals” – on the Alliance Web site:

<http://www.animalalliance.org>

- Food and Water: Provide access to good quality water and nutritionally balanced diets as appropriate for the species.
- Health and Veterinary Care: Implement science-based animal health programs, including prudent product use and provide appropriate veterinary care when required.
- Environment: Provide living conditions sufficient to meet the well-being needs of the animal as appropriate to each species.
- Husbandry Practices: Implement science-based husbandry practices appropriate to the species.
- Handling: Ensure proper handling practices throughout the life of the animal as appropriate to each species.
- Transportation: Provide transportation that avoids undue stress as appropriate to each species.

2) *American Registry of Professional Animal Scientists* – (ARPAS) ARPAS is the organization that provides certification of animal scientists through examination, continuing education and commitment to a code of ethics. ARPAS members represent the following groups:

- Consultants.
- Companies providing products and services.
- Producers, commodity organizations and related food industries.
- University, extension and government staff.
- Professional societies and related organizations.

3) *American Veterinary Medical Association* – (AVMA) Established in 1863, AVMA is a not-for-profit association representing more than 67,000 veterinarians working in private and corporate practice, government, industry, academia and uniformed services. Structured to work for its members, the AVMA acts as a collective voice for its membership and for the profession.

4) *Federation of Animal Science Societies* – (FASS) Founded January 1, 1998, by the American Dairy Science Association, American Society of Animal Science and the Poultry Science Association, FASS provides its member societies with a unified voice for animal agriculture, supports common interests and is an effective advocate for scientific perspectives to the general public. FASS has a track record of excellence in evaluating, interpreting and authoring animal care guidelines.

5) FDA – Food and Drug Administration

6) FMI – Food Marketing Institute

7) MWPS – Midwest Planning Service

- 8) NRAES – Northeast Regional Agricultural Engineering Service
- 9) NRC – National Research Council
- 10) OSHA – Occupational Safety and Health Administration
- 11) NCCCR – National Council of Chain Restaurants

b Coalitions:

- 1) FMI/NCRR
- 2) FASS-ARPAS

c Other Acronyms:

- 1) ACG Animal Care Guidelines
- 2) AMDUCA Animal Medicine Drug Use Clarification Act of 1994
- 3) CFR Code of Federal Regulations
- 4) DOA Dead on Arrival
- 5) FDA Food and Drug Administration
- 6) FS-BMP Food Safety Best Management Practices (NTF)
- 7) HACCP Hazard Analysis Critical Control Points
- 8) VCPR Veterinarian-Client-Patient Relationship

AVMA definition: "An appropriate veterinarian-client-patient relationship will exist when: (1) the veterinarian has assumed the responsibility for making medical judgments regarding the health of the animal(s) and the need for medical treatment, and the client (owner or caretaker) has agreed to follow the instructions of the veterinarian; and when (2) there is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s). This means that the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s), and/or by medically appropriate and timely visits to the premises where the animals are kept; and when (3) the practicing veterinarian is readily available for follow-up in case of adverse reactions or failure of the regimen of therapy." Source: HHS Publication No. (FDA) 00-6046, February 2000.

d References:

- 1) Animal Welfare Audits, NSF-Cook and Thurber, Middleton, WI, 2002
<cookandthurber.com>.
- 2) Downgrade Diagnostics Services, Poultry Intellimetrics, Inc., Paynesville, MN, Greg Hansen, president, 320-243-3506.
- 3) Effect of Ammonia on *Escherichia coli* quantitative clearance from respiratory system and livers of turkeys aerosol vaccinated against *Escherichia coli*, Dr. K. Nagaraja, et al, *American Journal Veterinary Research*, 1984, 44:1530.
- 4) Euthanasia and Slaughter of Livestock, Temple Grandin, Ph.D., Colorado, *Journal of the AVMA*, Vol 204 (1944) 1354-1360.
- 5) *Feed Additive Compendium*, Miller Publishing Co., Minnetonka, MN, and Animal Health Institute, Alexandria, VA, An annual publication.

- 6) Generic Environmental Impact Statement, Minnesota Environmental Quality Board, July 2002.
- 7) Induced Molting of Layer Birds, AVMA Policy Statements and Guidelines, AVMA Membership Directory and Resource Manual, pp. 77, 2003.
- 8) Judicious Use of Antimicrobials for Poultry Veterinarians, FDA, Center for Veterinary Medicine, March 2001.
- 9) *Nutrient Requirements of Poultry*, 9th Revision, National Research Council, 1994, National Academy Press, Washington, DC.
- 10) On-Farm Euthanasia of Turkeys, Considerations for Producers and Veterinarians, NTF, September 2000.
- 11) Poultry Programs Guidelines for Conducting United Egg Producers (UEP) Animal Husbandry Audits, Atlanta, GA, December 20, 2002.
- 12) Poultry Welfare Issues, Inma Estevez, Ph.D., University of Maryland, *Poultry Digest Online*, Vol 3, No. 2, 2003.
- 13) Poult Services Equipment, Nova-Tech Engineering, Inc., Willmar, MN, James Sieben, vice president, 320-231-9668.
- 14) The Etiology of Focal Ulcerative Dermatitis of Turkeys, Eric Gonder, Ph.D. thesis, College of Veterinary Medicine, North Carolina State University, Microfilm No. 9202556, 1991.

MODULES

Figure 1. Turkey Hatching - Module B Flow Chart

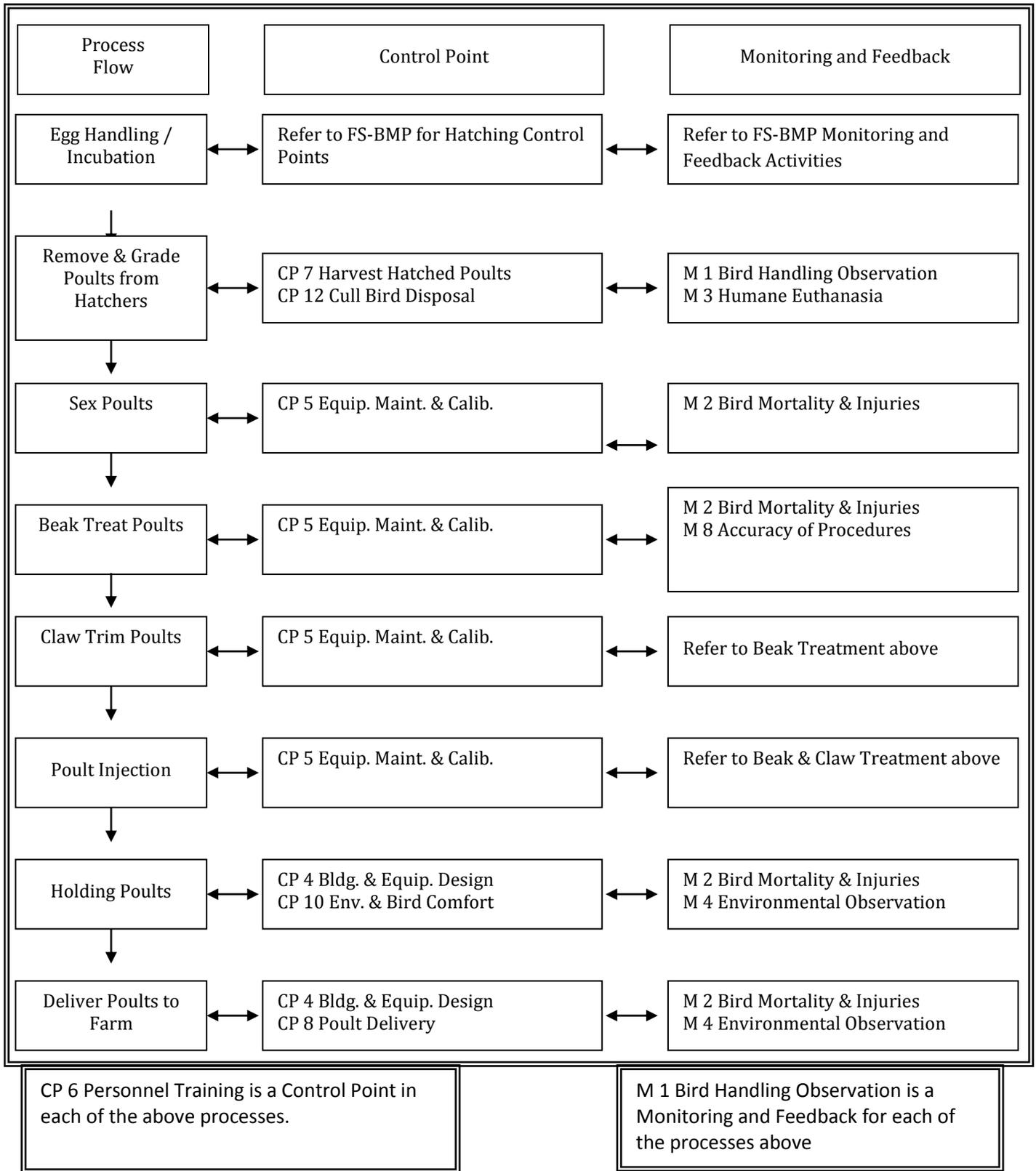
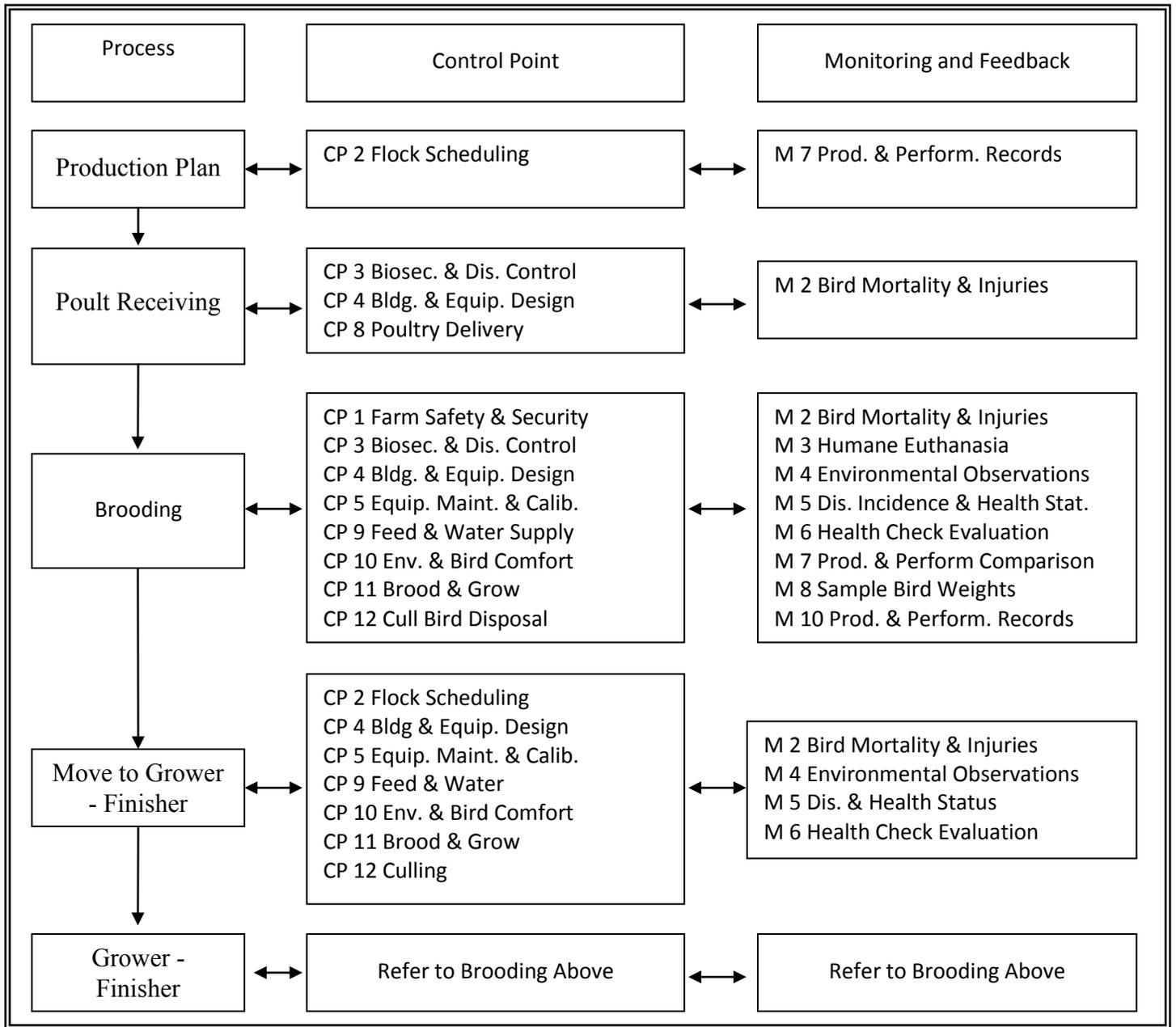


Figure 2. Turkey Production and Grow-Out – Module B Flow Chart



CP 6 Personnel Training is a Control Point in each of the above processes.

M 1 Bird Handling Observation is a Monitoring and Feedback for each of the processes above

Appendixes

Appendix A: Control Points

CP 1 Farm Safety and Security

1. The proximity to other sites, landscaping, drainage, roads, fences, gates and signs are all important in maintaining a turkey production operation safe and secure from unwanted visitors, vandalism or accidental damage that can put the turkeys at risk for injury, disease or stress.
 - a. Farm Site Biosecurity: Preventing the transmission of disease between farms and from wildlife outside the farm is essential to maintain healthy productive turkey flocks.
 - i. Management Procedures
 - 1) Situating the farm in a location that has a buffer zone separating the farm from public roadways and wildlife areas will reduce the risk of disease spread. Lakes, wetlands and heavily wooded areas should be avoided.
 - 2) Perimeter fencing of the farm with entryway gates can provide both wild animal and people security.
 - 3) “No Admittance” signs during the workday and locks on the gates during off hours provide security from the public.
 - 4) A clean parking area for visitors at the entry drive into the farm that is away from the turkey buildings will minimize on-farm traffic. It can provide a place for visitors and service persons to put on protective clothing prior to walking onto the farm and a place to leave contaminated clothing before leaving the farm. An outside wash-up area can be provided in some parts of the country and times of the year, as needed.
 - 5) A security building at the entrance to the farm can be used to control entry and increase the biosecurity level. A sign-in log provides documentation of traffic. Clean outer clothing and footwear can be provided with a clean-up area for all personnel. Shower-in and shower-out facilities are used where a high level of security is needed.
 - 6) A decontamination area for vehicles that must enter the farm will provide a higher level of biosecurity, as needed.
 - 7) Dead bird disposal is provided to reduce disease transmission and prevent attraction of wild animals, rodents and other disease vectors to the farm. On farm composting is suggested or covered secure containers for regular pick up and disposal.

CP 2 Flock Scheduling

1. The schedule must be developed using historical production performance, facility capacities, and the physical capability and expertise of personnel.
2. The birds must have enough space at each stage of production to stretch, move about comfortably, preen, grow and produce normally.

3. Down time between groups must be sufficient to permit adequate maintenance and cleaning.

CP 3. Biosecurity and Disease Control

1. All stages of production require biosecurity to reduce the risks of disease and provide assurance of the healthiest birds possible.
 - a. Turkey Buildings Biosecurity: Turkey buildings must be constructed and maintained to prevent disease agents present in wildlife and other animals and birds from coming in contact with the turkeys.
 - b. Poultry veterinary expertise is necessary to apply appropriate disease diagnosis and control to each flock.
 - 1) All doors and ventilation openings must be screened to prevent wild birds from entering the buildings.
 - 2) Doors and other ground level openings around the entire perimeter of the building must have tight fitting doors and coverings to prevent wildlife and other animals from touching the turkeys.
 - 3) Beetle control is practiced on each flock.
 - 4) Rodent protection must be built into the perimeter of the building and the operation should have a rodent control program.
 - 5) An evaluation of each building should be made periodically and repairs completed to maintain the building in a bird- and animal-proof condition.
 - 6) "No Admittance" signs on each building will help in control of people traffic on the farm.
 - 7) Door locks on the inside of the building to be used by workers when inside the building and door locks on the outside of the building when they are unattended will help to control people traffic.
 - 8) All persons entering the farm and turkey buildings are expected to comply with biosecurity policy and will wear proper clothing and footwear. They will utilize the sanitation area at each building.
 - 9) Persons should not enter a turkey building if they have been hunting or in contact with other birds or livestock within the past 24 hours.
 - 10) Dead birds are picked up routinely and disposed of quickly to minimize disease transmission and prevent attraction of wild animals, rodents and other disease vectors to the farm.
 - 11) Training programs that include biosecurity procedures are required for all new employees prior to entering the farm. Training updates are required for all employees.
 - 12) A biosecurity checklist is maintained and is posted for flock caretakers and farm managers.

- 13) All farm personnel are prohibited from maintaining any home flocks of poultry, wild or pet birds, or fowl of any kind and must avoid contact with livestock and other animals, which are potential carriers of pathogens.
- 14) Vaccination may be required to control specific diseases. Usually the vaccine is administered via drinking water or aerosol.
 - a. Water withholding prior to water vaccination is for no more than an hour or two to ensure all birds drink promptly before the vaccine deteriorates.
 - b. Individual injection of vaccines requires handling each bird. It is stressful to both birds and vaccinators. It is done only when absolutely necessary or in birds accustomed to handling (breeders).
 - c. Birds may be humanely euthanized when necessary to aid disease diagnosis (See CP 12).

CP 4. Building Facilities and Equipment Design

1. General Equipment and buildings must be designed, maintained and operated to avoid stress or injury to the birds.
 - a. Light fixtures must be kept clean to provide even light throughout the facility. Birds should have at least four hours of darkness per day except during the first and last week of growth.
 - b. Hurdles, gates and chutes must be kept free of splinters and sharp corners that cause bird injuries.
 - c. Equipment must be cleaned to prevent the transmission of disease between flocks and farms.
2. Hatcheries
 - a. Flow-through design from incoming eggs to poult shipment is helpful in minimizing the risk of exposing newly arrived clean eggs to potentially highly contaminated hatch debris.
 - b. Poult holding room space must be out of the flow of traffic, environmentally controlled and quiet to allow poults to rest after hatching.
 - c. An emergency power source is necessary to provide ventilation during electrical service interruptions.
3. Meat Bird Production
 - a. Buildings and equipment vary widely in type and capability across the country because of local weather, disease, management experience and class of bird produced.
 - b. Management and personal commitment to making things work is more important than the type and capability of the facility design.

CP 5 Equipment Maintenance and Calibration

1. General

- a. Buildings, doors, gates and pen facilities must be in good repair and operation to minimize injury to birds.
 - b. Weather conditions must be anticipated in scheduling work and appropriate equipment to minimize temperature extremes.
 - c. Feed and water equipment adjustments must be examined daily to meet the needs of the growing birds.
2. Hatchery
- a. Hatcheries require cleaning, washing and sanitizing specialized equipment for egg handling, incubation and hatching to protect the newly hatched poult from infectious agents or trauma from equipment.
 - b. Poult services are necessary to prepare poults for growout to prevent diseases and injuries. Grading, sexing, beak and toenail conditioning, and injection all require specialized equipment and personnel training.
 - i. Grading may be done as part of the poult harvest operation (See CP Culling and CP14 Poult Harvest).
 - ii. Sexing is necessary so that toms and hens can be grown out separately and the management and nutritional needs of the birds can be better met. Injury prevention and accuracy are the main issues in the sexing operation.
 - iii. Beak conditioning is necessary to prevent feather damage and mutilation from birds pecking each other to establish social order. The procedure using a mechanical clipper or hot blade has been largely replaced with the adoption of new technology and is not longer considered acceptable.
 - c. Fulguration is utilized to heat the germinal tissue of the upper beak the first day of life. This germinal tissue loss reduces upper beak growth as the bird grows. There is no blood loss and no detectable effect on poult behavior. The slightly shorter upper beak prevents the bird from injuring other birds in the flock. This equipment has been in wide use for many years.
 - d. A device widely utilized in the last several years uses a short burst of high intensity light to denature a small area of germinal tissue at the tip of the beak. After treatment the tip of the beak changes color and a white spot is visible. The effect on the day old poult is undetectable as indicated by normal pecking behavior in the poult boxes and in the brooder ring. Within two weeks the sharp hook of the beak painlessly erodes away as the bird uses the beak normally. As the bird matures the upper beak remains somewhat shorter and has no sharp edges.
 - e. Toenail conditioning is sometimes necessary to prevent damage to the feathers and skin of the birds during growout to prevent painful injuries. Such injuries can make it necessary to euthanize the bird or cause trimming or downgrading in the processing plant.
 - f. The historic method of toenail trimming utilizes a hot blade, which is used to trim it with minimal loss of blood and a clean wound that will heal without infection. The industry has utilized this method for several decades and it remains acceptable. This treatment replaced the more invasive mechanical clipper, which is not longer acceptable.

- g. A new microwave technology for toenail conditioning is increasingly employed by the industry. It is considered a more humane method of treatment. Microwave toenail conditioning equipment permits bloodless trimming of the toenail without an open wound. A short burst of microwave energy is directed at each claw, denaturing the germinal tissue at the end of the claw. After treatment the toenail changes color. Within two weeks it darkens, shrinks and falls away. The effect on the poult is minor as indicated by normal movement in the brooder ring. As the bird matures there are no horny or sharp areas on the toes to cause injury or damage to other birds.
 - h. Needle injection of vaccine or medicines may be done by trained personnel with multiple dosing syringes or by automatic injectors. Operators and equipment must be carefully trained and closely supervised.
 - i. Snood trimming, when done to minimize injury among birds, should be done at an early age (preferably one day) and should be performed by trained personnel.
3. Meat Bird Production
- a. Equipment operation and maintenance must ensure suitable conditions throughout the day and night.
 - b. Lights, ventilation systems, time clocks, feed and water systems, alarm systems and other equipment must be checked regularly and repaired, if needed.
 - c. Operators must realize that target environmental conditions will vary by season, geographical area, age and sex of the birds, feathering, depth of litter pack, litter moisture level, dust, outside temperature, wind and humidity. It will also vary with the individual operations depending on the type of building, construction and design, ventilation equipment and other variables. Each operation must establish their own appropriate target temperature ranges, which are then detailed for their operation and integrated into personnel training and communication with all the workers.

CP 6 Personnel Training

1. All Modules of the ACG manual and all stages of production require personnel training to ensure humane treatment. Management must take the lead in establishing a priority for the well-being of turkeys and assign responsibility for this essential activity. The thoroughness and frequency of training is important as is continuous corrective supervision and documentation. This is particularly true of crew-related procedures such as loading, artificial insemination and individual bird injection, and those requiring handling of individual birds, such as sexing, beak and toenail conditioning, and culling.
2. Successful turkey operations avoid causing negative performance with these activities or with inadequate control of temperature, wind chill, litter moisture, noxious gases, noise and so on. Negative performance includes reduced feed consumption, reduced growth, immunosuppression, injury and disease.
3. All personnel in the turkey operation should receive training. It should be recognized that the best training is one-on-one contact with steady, reliable

oversight and feedback. Larger operations spanning great distances may find manuals and other non-personal training aids useful.

4. Daily operational expectations, biosecurity, disease control, sanitation, bird handling practices and other personal daily responsibilities should be included in training activities. This training should emphasize consideration of the needs of the birds from the birds' point of view. Bird comfort is the main factor in good husbandry of turkeys.

CP 7 Hatched Poult Harvesting

1. Separating the normal viable poult from hatch debris requires training. Determining whether a poult should be harvested or destroyed requires understanding of the hatching and maturation process, and a degree of judgment. When handling of individual poult is necessary, it must be carefully done to avoid injury.
2. Disposal of the hatchery debris must result in quick death with minimal distress for any live poult left in the debris.
 - a. High speed maceration or grinding results in immediate death for unhatched embryos or newly hatched non-viable poult.
 - b. Another acceptable method of euthanasia in the hatchery is carbon dioxide gas.

CP 8 Poult Delivery

1. Unless disinfected on site, the hatchery poult delivery vehicle should not enter the brooding building. The driver and other personnel must meet biosecurity requirements to enter the brooding building.
2. The poult's condition and activity level should be carefully evaluated on delivery. Deviations from normal practices should be promptly reported to the hatchery and brooding conditions modified, if necessary.
3. Record all pertinent information on the delivery receiving forms to provide management with a copy of the information.
4. A high level of husbandry management is required to minimize stress and maintain the immunological competence of the very susceptible young poult during brooding. Brooding personnel must be prepared to adapt to variations in poult size and activity level, which may require modifications in brooding temperatures, building temperatures, ventilation rates, feed and water placement, and light levels.
 - a. Brooder Ring Setup
 - i. Brooder rings confine the poult to heat, water and feed during the first days of brooding and is important to prevent starvation or dehydration of poult. Poult are altricial and require a high level of brooding heat and husbandry to get started in life. Brooder rings are usually made from 18 inch high corrugated cardboard and there should be no sharp corners that may

- encourage poults to pile up. Rings are usually removed by the end of the first week.
- ii Single stove or double stove rings are used and a density of 200 to 500 poults per stove is acceptable in most operations depending on type of stove, other equipment and facilities, seasons and other conditions.
 - iii Brooder stoves must have a ceramic or infrared source of radiant heat to shine heat down into the litter and warm the poults.
 - iv Feeder troughs 2 to 3 feet long are set around the stoves like the spokes of a wheel to facilitate poult movement in and out from the hot spot.
 - v Incorporating an automatic feed line into the ring is done in some operations to reduce labor requirements the first week.
 - vi Water drinkers are placed around and between the brooder stove. Usually 2 to 3 round bell-type drinkers or one 6-foot V-trough drinker is used per 2-stove ring. Additional water jar or biddy type drinkers that require (manual) hand filling are used the first few days to supplement the automatic drinkers.
- b. Heat and Ventilation Equipment
- i Temperature adjustment must be done frequently to provide a minimum of 95 degrees F in a “hot spot” during the first days of brooding. This high heat requirement decreases each day as the poults mature.
 - ii Hot room brooding with temperatures at or near 95 degrees F can be used; however, it is difficult to prevent dehydration in the poults. Using a cooler room of 85 degrees F or lower with the use of radiant infrared heat under a brooder stove that creates a “hot spot” is generally preferred by most growers. Each stove can be adjusted as needed during the critical first days by watching the reaction of the birds and adjusting conditions as necessary to provide a “ring “of poults under each stove.
 - iii Space heaters are utilized in addition to brooders stoves in some operations and may replace the brooders after the first two or three weeks of brooding to provide the supplemental heat needed.
 - iv Air exchange is essential during the brooding process. Poults are highly susceptible to ammonia, which causes respiratory problems and immunosuppression. Ammonia levels should be below 25 parts per million.
 - v Wet litter must be prevented or removed as required to prevent build up of ammonia in the air and to prevent “manure burns” on the foot pads of young poults.
- c. Room Temperature
- i An acceptable room temperature on the day the poults are

- released from the brooder rings is approximately 85 degrees F. This will vary with the operation and conditions.
- ii The temperature should and can be lowered about two to three degrees F every three to four days after the second week down to approximately 70 degrees F by the end of the fifth or sixth week. Again this varies with operation and conditions.
- iii A critical clinical evaluation of the birds is important in determining room temperature requirements as the temperature is lowered to prevent huddling or panting.
- d. Lights and Lighting
 - i Poult s are very sensitive to light and require a high level of light to start well with minimal mortality due to starving out.
 - ii A wide range of equipment, intensity and on-off schedules are used depending on the operation.

CP 9 Feed and Water Supply

1. Each facility must provide feed and water in a uniform and continuous manner. Equipment suppliers should be consulted as to the space requirement per bird for the age and type of turkey housed in the building. These recommendations may need to be modified to meet local conditions as necessary.
2. Feed must be palatable, available, formulated and manufactured to meet the needs of the birds being fed. An experienced nutritionist must be involved in the design of the feed program.
 - a. Feed mill management must utilize Good Feed Manufacturing Practices and have current FDA registration.
 - b. Feeding Equipment
 - i Automatic systems have become standard. They present feed to the birds in a uniform and continuous manner throughout the building. Follow the manufacturer's recommendation concerning length of augers and feed separation.
 - ii Feed level control in the trough and feeder height above the litter should be adjusted once or twice a week to assure ease of eating by the birds with minimum feed wastage. Feed wastage into the litter is costly and provides a feed supply and breeding medium for insects and rodents.
3. Drinking water must be palatable and available at all times. Any interruptions should be carefully monitored under a veterinarian's direction.
 - a. Watering Equipment
 - i Automatic watering systems are used to provide a constant source of clean water. Many types of systems and drinkers are in use with various advantages and disadvantages.
 - ii Nipple or peck drinkers are being used in some operations.

They have not been well accepted because of reduced water consumption by the poult. They have the advantage of dryer litter and a lower labor requirement to manage them.

- b. Water spilled into the litter around the drinkers promotes the growth of bacterial pathogens. Adjust the water level in the fountain (drinker) to minimum depth to minimize spillage without restricting water consumption. Deeper water levels are necessary in hot weather. Also increase the height of the fountain (drinker) above the litter as much as possible without inhibiting water consumption to help reduce spillage.
- c. Water fountain (drinker) requirements vary depending on the operation. Two to five drinkers or more per 1,000 birds are used depending on type of fountain (drinker), climate, season, sex, etc. Round bell type drinkers, pan and grill, swish cups and "V" troughs are used.
- d. Water fountains and the water supply system must be mechanically cleaned periodically and the water should be treated with chlorine or other sanitizers on a routine basis to reduce bird-to-bird transmission of microbial pathogens and to maintain the quality of the water for good consumption and weight gain performance by the flock.
- e. Water Fountain (Drinker) Sanitation
 - i. Supply System
 - 1.) Inject chlorine into the water supply system in amounts that are adequate enough to provide detectable (one PPM or less) free chlorine in the drinking water in the trough of the last fountain (drinker) (s) at the end of the supply line(s) in the building. Chlorine materials that can be used are:
 - a. Liquid household chlorine bleach - 5.25 percent sodium hypochlorite solution.
 - b. Concentrated commercial 10 percent hypochlorite solution.
 - c. Chlorine gas.
 - 2.) The chlorination system must be controlled to allow routine adjustment of the level as needed and be able to be shut it off to provide chlorine-free drinking water during water vaccination procedures with live vaccines.
 - 3.) Operations with batch medication watering systems have used "once-a-day chlorination" by adding approximately 12 ounces of household bleach to the first 500 gallons of water each day.
 - 4.) In all cases, the level of chlorine should be monitored on a routine, almost daily basis to ensure adequate, but not toxic, levels. Daily monitoring of water consumption is important for ensuring that toxic levels are not present.
 - ii. Water Drinkers

- 1.) Drinking water drinkers are an important source of bird-to-bird transmission of pathogens within the flock. Birds contaminate the fountain (drinker) and the drinking water in the fountain (drinker) while they are drinking with fluids and waste materials from their body. Discharges from their eyes, nose and mouths and fecal material from their vent, feathers and mouths are all potential sources of pathogens. The feed particles that stick to the inside of their mouths will wash off and drop into the water fountain (drinker) providing a source of nutrients for bacterial growth. In a room temperature or warmer building the water temperature in the fountain (drinker) will be high enough to grow bacteria and the coliform counts can increase into the millions in a few hours. High coliform counts in the drinking water will cause enteritis and reduce the health of the flock and resistance to pathogens.
- iii Cleaning and Management Procedures
 - 1.) Frequent cleaning and disinfection of each fountain (drinker) is necessary to maintain a clean, healthy water supply.
 - 2.) The accumulation of fecal material, feed particles and microbial growth should be removed by scrubbing with a brush or scouring pad and then flushed away.
 - 3.) Following the mechanical cleaning, the fountain (drinker) should be disinfected with a suitable disinfectant such as a chlorine or iodine solution.
 - 4.) A “two pail” system is recommended to maintain clean disinfecting solution while cleaning the many drinkers in the building. The cleaning and disinfecting solution is carried in the “clean pail” with a brush. The brush is dipped into the pail and then used to scrub the fountain (drinker). Then the fountain (drinker) is dumped into the “dirty pail” before going on to the next fountain (drinker). The fountain (drinker) then fills from the fresh water supply. When the “dirty pail” is full it is dumped in a drain or outside of the building away from the birds. When the “clean pail” is empty it is refilled with fresh cleaning and disinfecting solution.
 - 5.) Continuous disinfection of the water supply is an important management practice to help maintain clean and safe water for the birds. Adequate disinfection can significantly reduce the frequency of hand scrubbing needed to keep the drinkers clean.
 - 6.) Chlorination of the water supply is the most common method of continuous disinfection. Sufficient chlorine needs to be added to the water supply at the well or at the

point in the supply system where the water enters the turkey building so that active chlorine can be detected coming into the last water fountain (drinker) at the end of the supply line(s) in the building. A level of one to five parts per million in the water fountain (drinker) can be maintained with good results in turkey production.

- 7.) Organic iodine solutions can be used in place of chlorine. Follow directions on the label.
- 8.) Very young poults in the brooder may be negatively affected by high doses of chlorine or iodine and water consumption may be depressed.
- 9.) Discontinue water disinfection prior to and following water vaccinations. Live vaccines administered in the drinking water may be inactivated by very low levels of disinfectants in the water.
- 10.) Utilize a chlorination test kit to periodically measure the levels of “active” chlorine in the drinking water in the drinkers at various locations in the building.

CP 10 Environmental Control and Bird Comfort

1. Bird comfort checks must be performed at least daily to assess the environment and the birds’ comfort. Personnel responsible for a building with live birds must walk through twice a day, or more often as needed, depending on weather, bird condition or age, disease, equipment problems or other circumstances that may result in rapidly changing conditions.
 - a. A high level of husbandry management is required to minimize stress and maintain immunological competence throughout the entire production period.
 - i. Heat and Ventilation Equipment
 - 1.) Air exchange is essential to remove the heat produced by the turkeys, remove carbon dioxide, ammonia and other gases that would build up and become toxic to the birds, and to remove the respired water in the air and water evaporating from the litter.
 - 2.) Water removal is a major reason for air exchange. The water consumed every day by the birds, exclusive of the respired water they exhale, basically goes into the litter and must be removed every day or the litter would become progressively wetter each day. Most of the time in warm weather, the air exchange required to remove bird heat will also be adequate to remove the water. During moderate or cool periods, more air exchange may be required to remove the water than is needed to cool the birds and supplemental heat will be required to maintain room temperature. As the water evaporates from the litter, the

evaporation also cools the building. It takes a significant amount of heat to evaporate the water in the litter every day.

- 3.) Space heaters of various types are used in some locations, depending on climatic conditions, to provide supplemental heat, as needed.
- 4.) Dust is another major air contaminant that is affected by ventilation. The removal of water from the building is more efficient in colder weather because the exchanged air is heated significantly through the building and carries a lot of water with it. The psychrometric chart can be used to show that for approximately every 20 degree F rise in air temperature, the amount of water held in the air will double. In very cold weather in the northern climates during the winter months this very efficient removal of water results in very dry and dusty turkey buildings.
- 5.) Air exchange also removes dust. Increasing air exchange will not, however, remove enough of the dust to clear the air. Dust will continue to rise from the litter pack in the building. As the ventilation is increased to remove dust, the relative humidity is lowered, and more dust rises into the air.

ii Temperature and Temperature Control

- 1.) Summer conditions in many climatic areas require the use of water cooling, especially for heavy tom production, after the temperatures exceed approximately 90 degrees F. Humidity and wind speed are important in determining the need for water cooling. Acclimation is also a factor during the first hot spell of the season.
 - a. Dust control is also an important management requirement to prevent airsacculitis condemnation in hot weather. When dust levels increase, the panting birds take in more dust than they can accommodate. Water cooling reduces panting and wets the dust particles to help clear the air.
 - b. Fogging is used in hotter climates and sprinkling tends to be used in temperate areas.
- 2.) Higher temperatures in growing and finishing tend to depress feed consumption and improve feed conversion. Thus, higher temperatures are sometimes allowed in growing hens to improve productivity.
- 3.) Toms are more susceptible to dust and prone to airsacculitis condemnation so lower room temperatures are used, which reduces panting and dust levels.
- 4.) Winter production of tom turkeys in the temperate and

cooler climate areas usually requires dust control measures to prevent airsacculitis condemnations. Water sprinkling and lower room temperature make dust particles heavier by increasing the relative humidity and help to clear the air. The relative humidity rises as the room temperature is lowered. Temperatures down to 40 or 50 degrees F are used in some areas to control dust and airsacculitis.

iii Light

- 1.) Light is very important to bird health, growth and performance. A wide range of equipment, intensity and on-off schedules are being used and evaluated by the industry. Birds should have at least four hours of darkness per day, except during the first and last week of growth.

iv Litter Management

- 1.) Complete cleaning and disinfection between cycles (flocks) in the grower/finisher stages of production is necessary whenever a highly infectious viral agent, such as avian influenza, or a highly infectious bacterial agent, such as a mycoplasma or fowl cholera organism was present in the previous flock.
- 2.) Complete cleaning and disinfection between cycles (flocks) in the grower/finisher stages of production on a routine every cycle basis is not considered necessary in the production of normally healthy flocks of turkeys. Reused litter in the grower/finisher stages has been shown to promote good health and performance of turkeys. Properly managing litter in the grower/finisher stages can provide as good or better conditions than using all new fresh litter each time. Reconditioned and reused litter heats up in the building as it composts, converting ammonia nitrogen into bacterial bodies (fixing the nitrogen). The heat produced assists in the drying of the litter and provides a pasteurization of the manure pack, which helps to reduce or eliminate many pathogens.
- 3.) Litter moisture must be managed during growout and finishing to prevent leg problems and breast blemishes when litter is too wet and respiratory problems when litter is too dry and dusty.
- 4.) Management Practices
 - a. Remove the wet caked areas under the feeding and watering equipment, as needed between each cycle (flock).
 - b. Blowing down and/or washing down of the inside surfaces and equipment improves the sanitation level and operation of the ventilation equipment.

- c. Removal of approximately one-fourth or one-third of the total manure pack each time will maintain a stable manure pack volume and depth in the building year around. Rototilling the entire manure pack before cleanout facilitates the process and results in better quality material for handling and spreading on cropland. "Housekeeper" machines can be used to accomplish the removal, mixing and leveling process in one step.
- d. Blade, dig and/or rototill the remaining litter to facilitate composting and drying while spreading it out evenly over the entire house floor. Blading the litter into a windrow to mix and stimulate composting and drying can be done prior to spreading. Spring tooth diggers can be used to speed up the drying process after mixing and composting.
- e. It is important to blade, dig and or mix all of the litter in the building, including the material around the perimeter. Litter next to and in contact with the foundation, and door thresholds and openings may be cooler than the rest of the manure pack. Cold litter can protect pathogens from the pasteurization process of composting. This is particularly important during winter months when freezing occurs, protecting pathogens and preventing die off in the litter.
- f. Litter additives have been used and may be helpful to reduce the ammonia levels during the first week or two in the growout stages.
- g. Rototilling of litter on a routine weekly basis is suggested during the first few weeks in the growout buildings to stimulate composting and litter drying. This is especially true for fast growing tom flocks with a high rate of feed and water intake and faster litter moisture accumulation, which results in uneven litter buildup around feeders and waterers.
- h. Management of ventilation is the key to litter management. Circulation and mixing of air throughout the building with adequate air exchange of moisture laden inside air with dryer outside air must be monitored on a routine daily basis and adjusted, as needed, to maintain good litter conditions.

- i. Supplemental heat may be required in some climates and conditions.
- j. Rebedding may be necessary around waterers and feeders when litter moisture conditions are too high.
- k. Rototilling is not recommended in the latter weeks of production when litter moisture is low and dusty conditions occur, which cause airsacculitis.
- l. Dusty conditions can be improved by reducing the temperature in the building. This is accomplished by increasing the ventilation rate (air exchange), which will increase relative humidity and increase the weight of the dust particles so they settle out faster. It is not possible to ventilate out a dusty condition since the litter pack will get dryer and manure will continue to dust up into the air.

CP 11 Brooding and Growing

1. Daily walk-through inspections of the flock should be done without upsetting the flock by causing running, jumping, piling or other abnormal activity that will stress the birds and may cause injuries.
2. The removal of dead and cull birds every day is important for the overall well-being of the flock. Diseased or decomposed birds increase the exposure of healthy birds to disease agents and toxins.
3. The removal of buckets or other deep-sided containers is necessary to prevent young birds from jumping in one on top of another, resulting in the deaths of those on the bottom.

CP 12 Cull Bird Disposal

1. Removal of abnormal birds by humanely culling them from the flock and disposing of them should be done routinely.
2. The determination of whether or not to cull can be more easily made by answering the questions listed in the *NTF On-Farm Euthanasia of Turkeys* document:
 - a. Is the bird experiencing pain?
 - b. Is the bird able to access the feed and water?
 - c. Can or should the bird be treated?
 - d. Is recovery likely?
 - e. Is the bird likely to transmit disease to other birds?
 - f. Is the bird suitable for human consumption or will it be suitable for consumption after recovery?
3. Maintaining a sick pen may be beneficial depending on the cause of the

- condition. In many disease situations it is not a practical or effective option.
4. Euthanasia of culled birds is well described in the *NTF On-Farm Euthanasia of Turkeys* manual. The procedure used must result in quick and sure death with minimal pain and distress. Cervical dislocation is a common procedure used by many producers and can be used for most ages of growing birds. Larger more mature hens and toms may require an alternate procedure as described in the *NTF On-Farm Euthanasia of Turkeys* manual.
 - a. These euthanasia methods are listed in the *NTF On-Farm Euthanasia of Turkeys* manual:
 - a. *Cervical dislocation* is acceptable and carries low human safety risk when done by trained personnel. The skill required is moderate with only labor cost involved. The procedure is of limited use for more mature and market age birds due to size and tissue strength.
 - b. *Carbon dioxide gas* is acceptable, especially when large numbers of birds are involved. An enclosed chamber and gas supply is required along with personnel safety training. The birds can experience respiratory distress if exposure levels are too low. The cost is moderate to high.
 - c. *Captive bolt* is often used in large animal slaughtering plants and is acceptable for birds. Training is required and the cost is moderate, following the purchase of captive bolt equipment.
 - d. *Blunt trauma* to the head is often used on larger mature birds and is acceptable if carefully applied. Moderate training is required with only labor cost involved. The blow must be of sufficient strength and be placed properly so that instantaneous death is ensured each time. Restraint may be necessary.
 - e. *Anesthetic overdose* is sometimes used in diagnostic procedures where a licensed veterinarian can administer the procedure.

Appendix B – Monitoring and Feedback

M 1. Bird Handling Observation

1. Observations and evaluation of bird handling procedures must be done routinely.
2. The AC-Bird Handling Procedure Observation Form should be used to record observations on all procedures.
3. A Monitoring and Feedback Report should be prepared monthly, quarterly or as appropriate and sent to management with comments on the overall operation. Observations on specific employees' performance should be utilized at monthly or periodic personnel meetings to encourage positive behavior and discourage rough handling.
4. Monitoring and feedback on animal care practices involved in poult delivery (CP 8) should be recorded at delivery and provided to the hatchery.

M 2. Bird Mortality, Morbidity and Injuries

1. Mortality is counted and recorded each day for each stage of production and at each step of any activity associated with handling of birds.
2. The cause of each death should be determined, if possible, and included in the record.
 - a. Utilize the Health Check Evaluation Form.
3. Dead birds are disposed of properly and according to the biosecurity plan of the facility.
4. An investigation should be made whenever the mortality is above what is expected or if unusual circumstances exist. It is important to know the cause of death in order to provide feedback to the personnel involved in the bird handling or production activity. If the death resulted from the handling procedures, the personnel involved must be informed. If disease is a problem, steps must be taken to treat and manage the problem. The problem must be corrected as soon as possible and management plans need to be developed to prevent future mortality.
5. Injuries can be observed and reported on a routine basis. When an unusual number of birds become injured, the information and causes of the injuries should be documented to stimulate corrective procedures. Management should correct the problem as soon as possible and develop plans to prevent further injuries from occurring if the problem is repeated.

M 3. Culling and Humane Euthanasia

1. *NTF On-Farm Euthanasia of Turkeys* was prepared in September 2000 by The Center for Animal Welfare at the University of California, Davis, in cooperation with the National Turkey Federation Humane Culling of Turkey Task Force. The decision making questions concerning culling are:
 - a. Is the bird experiencing pain?

- b. Is the bird able to access the feed and water?
 - c. Can or should the bird be treated?
 - d. Is recovery likely?
 - e. Is the bird likely to transmit disease to other birds?
 - f. Is the bird suitable for human consumption or will it be suitable for consumption after recovery?
2. Euthanasia methods are listed in the NTF Guide:
 - a. Cervical dislocation is acceptable and carries low human safety risk when done by trained personnel. The skill required is moderate with only labor cost involved. The procedure is of limited use for more mature and market age birds due to size and tissue strength.
 - b. Carbon dioxide gas is acceptable, especially when large numbers of birds are involved. An enclosed chamber and gas supply is required along with personnel safety training. The birds can experience respiratory distress if exposure levels are too low. The cost is moderate to high.
 - c. Captive bolt is often used in large animal slaughtering plants and is acceptable for birds. Training is required and the cost is moderate following the purchase of the captive bolt equipment.
 - d. Blunt trauma to the head is often used on larger mature birds and is acceptable if carefully applied. Moderate training is required with only labor cost involved. The blow must be of sufficient strength and be placed properly so that instantaneous death is ensured each time. Restraint may be necessary.
 - e. Anesthetic overdose is sometimes used in diagnostic procedures where a licensed veterinarian can administer the procedure.
 3. Use the Euthanasia Action Plan in the back of this booklet to provide both experienced and new employees with methods of choice and alternative method for humane euthanasia.

M 4. Environmental Observation

The underlying basis for determining acceptability of the environment is determining the comfort level of the birds. A common observation, such as lack of preening and dirty feathers, will indicate a wet litter problem. Factors such as temperature, odors, air and noise level are all involved in the assessment. These factors are addressed in M 6 as part of the Health Check Evaluation.

M 5. Disease Incidence

1. Veterinary diagnostic evaluations of mortality and morbidity problems are routinely performed to respond to disease and improve the health of flocks. Mortality records are maintained on each flock.
 - a. Diagnostics and other laboratory reports are available and utilized.
2. Consultation with a poultry veterinarian familiar with the area and the operation is important to devise an effective health program to prevent disease.
 - a. Health programs should be developed and updated periodically for each

- operation.
3. Consultation with an experienced nutritionist is important in order to remain current in growth and feed efficiency performance, as well as to prevent nutritional problems that might compromise the flocks.

M 6. Health Check Evaluation

1. **Acceptable** Animal Health Signs

- a. Flock Inspection
 - i. Birds follow walking people, are inquisitive, stretch, preen, play, strut and have normal activities.
 - ii. Clean (white) feathers
 - iii. Round prominent eyes
- b. Building & Environment
 - i. Fresh clean air with good air movement
 - ii. Comfortable temperature
 - iii. Appropriate CO levels
 - iv. Appropriate CO₂ levels
 - v. Appropriate NH₃ levels
 - vi. Appropriate humidity levels
 - vii. Quiet
 - viii. Good lighting
- c. Ventilation and Heating Systems
 - i. Dust-free equipment
 - ii. All fans, shutters and curtain opening equipment 100 percent operable
- d. Litter
 - i. Moist but does not ball easily
 - ii. Doesn't emit dust when disturbed
 - iii. Level with minimal ridges, rings or doughnuts around equipment
- e. Droppings
 - i. Moist but firm fecal droppings
 - ii. Viscous white cap material on fecal droppings
 - iii. Few cecal droppings
 - iv. Viscous dark colored cecal droppings

2. **Unacceptable** Signs of Animal Health

- a. Flock Inspection
 - i. Birds do not move easily or are lame.
 - ii. Birds sit most of the time or appear depressed.
 - iii. Dirty, discolored feathers from wet litter, lack of preening or from wiping eyes and nostrils on shoulder feathers.
 - iv. Drooping wings
 - v. Excessive broken feathers
 - vi. Slanted, dim looking eyes
 - vii. Cough, "snick," sneeze, rubbing of eyes, swollen sinuses and foamy eyes.
 - viii. Dead birds in the litter
 - ix. Cull birds in the flock

- b. Building and Environment
 - i. Stale air or ammonia odor
 - ii. Air feels cool or hot, sticky and uncomfortable
 - iii. CO and/or CO₂ levels too high
 - iv. Loud noise from equipment, people or outside activities
 - v. Dim or uneven lighting
 - c. Ventilation and Heating Systems
 - i. Dusty or dirty equipment and vents
 - ii. Equipment in need of service
 - d. Litter
 - i. Uneven with many ridges and mounds
 - ii. Clutter of equipment, gates, garbage, clothing, footwear, extra drinkers, feed pans, wheel barrows, fork or rakes on the litter that disturbs air movement and encourages litter eating.
 - iii. Wet soggy areas
 - iv. Produces dust easily when disturbed.
 - e. Droppings
 - i. Soft, mushy, fecal droppings with undigested feed
 - ii. Fecal droppings with slimy, runny white caps
 - iii. Excessive cecal droppings
 - iv. Fluid, yellow/tan, foamy cecal droppings
3. Utilize the Health Check Evaluation Form on a routine basis to improve observation accuracy and to maintain a record of findings.

M 7. Production and Performance Records

1. Accurate and timely flock production and performance records are essential to the success of a turkey operation. They are also helpful in evaluating the health and wellbeing of the flock and for providing feedback to the personnel who care for the birds.
2. Most integrated companies and several independent service organizations provide comparison information that will allow an operation to determine if they are above or below the industry average in their performance. Statistical process control can be used to continually improve all aspects of production. This information helps management to set a priority for problem areas that might exist that need to be and can be improved. Examples are given in the back of this manual.
3. The Production and Performance Comparison Form should be completed when the final flock report is completed and the information is available. It will provide measurements of the animal care provided and well-being of the flock. This feedback information should be used to evaluate and educate all personnel involved in caring for the flock.

M 8. Sample Bird Weights

1. Rate of gain compared to an expected standard is one of the best single measurements of performance and flock health. It is determined by individually

weighing a representative sample of the flock periodically during growout to determine the average weight.

2. A minimum of 15 to 20 birds per pen or building should be weighed by selecting a few of the bigger birds, a few of the smaller birds and a larger number of average sized birds.
3. Day of age weights may be taken and then repeated at biweekly or monthly intervals to keep track of weight gain performance.
4. Adopt a standard weight chart for each week considering sex, strain, season, feed program and facility to compare with the sample weights.
5. Weight Capability Standard -Average Live Weight of 100 birds

Tom Turkey

Average Age of the Flock	DAYS						
WEEKS	0	1	2	3	4	5	6
1	0.40	0.46	0.52	0.55	0.62	0.68	0.74
2	0.80	0.93	1.06	1.19	1.32	1.45	1.57
3	1.70	1.89	2.09	2.32	2.44	2.63	2.82
4	3.00	3.20	3.40	3.60	3.80	4.00	4.20
5	4.40	4.63	4.86	5.09	5.32	5.55	5.77
6	6.00	6.26	6.51	6.77	7.03	7.28	7.54
7	7.80	8.08	8.37	8.66	8.94	9.23	9.51
8	9.80	10.2	10.5	10.9	11.3	11.7	12.0
9	12.4	12.8	13.2	13.6	14.0	14.4	14.8
10	15.2	15.5	15.8	16.1	16.4	16.7	17.0
11	17.3	17.7	18.2	18.6	19.1	19.5	20.0
12	20.4	20.7	21.1	21.4	21.8	22.1	22.5
13	22.8	23.1	23.5	23.8	24.2	24.5	24.9
14	25.2	25.5	25.9	26.2	26.5	26.9	27.2
15	27.5	27.8	28.1	28.5	28.8	29.2	29.5
16	29.8	30.1	30.4	30.8	31.1	31.4	31.7
17	32	32.3	32.6	32.8	33.1	33.4	33.7
18	34	34.3	34.6	34.8	35.1	35.4	35.7
19	36	36.3	36.6	36.8	37.1	37.4	37.7
20	38	38.3	38.6	38.8	39.1	39.4	39.7
21	40	40.3	40.6	40.8	41.1	41.4	41.7
22	42	42.3	42.6	42.8	43.1	43.4	43.7
23	44						

Hen Turkey

Average Age of the Flock	DAYS						
	0	1	2	3	4	5	6
1	0.40	0.45	0.51	0.56	0.61	0.67	.072
2	0.77	0.89	1.00	1.12	1.24	1.36	1.47
3	1.59	1.76	1.92	2.09	2.26	2.43	2.59
4	2.76	2.93	3.10	3.27	3.44	3.61	3.78
5	3.95	4.13	4.31	4.48	4.66	4.84	5.02
6	5.20	5.39	5.58	5.76	5.95	6.14	6.33
7	6.52	6.72	6.92	7.12	7.32	7.53	7.73
8	7.93	8.19	8.46	8.72	8.99	9.25	9.51
9	9.78	10.1	10.4	10.6	10.9	11.2	11.5
10	11.8	12.0	12.2	12.4	12.6	12.8	13.0
11	13.2	13.5	13.8	14.1	14.4	14.7	15.0
12	15.3	15.5	15.8	16.0	16.3	16.5	16.8
13	17.0	17.2	17.5	17.7	17.9	18.1	18.4
14	18.6	18.8	19.0	19.2	19.4	19.6	19.8
15	20.0	20.2	20.3	20.5	20.7	20.8	20.0
16	21.2	21.4	21.5	21.6	21.8	21.9	22.1
17	22.2	22.4	22.5	22.6	22.8	22.9	23.0
18	23.2						

Calculation: Determine Age -Weeks-Days then find the Standard Weight from the chart. Determine Actual Sample Weight Divide Actual by Standard Weight to determine percent of Standard Weight

M 9. Accuracy of Procedures

1. Each procedure performed on turkeys at any stage of production must be monitored to ensure the effectiveness of the procedure. Errors must be investigated and corrective action taken to improve accuracy. For example, vaccination of poults in the hatchery is done to provide disease protection. A sample number of the poults can be inspected following injection to see if any are missed or injected in the wrong site. Changes can then be made in the training of personnel to correct any problem and to prevent poults not protected by vaccine that remain susceptible to disease.
2. Inspecting a sample of birds to monitor them for handling injuries and damage from various procedures such as vaccination, sexing, toenail conditioning or beak conditioning can be done to determine if the procedures are being performed correctly.
3. Spraddle leg poults due to hatchery handling injuries are culled from the flock as the signs become evident and the hatchery notified.
4. Postmortem inspection of DOA's at time of poult placement by a trained technician can determine procedural errors such as injecting in the wrong site or tissue.

M 10. NTF Animal Care Forms and Reports

NTF Animal Care – Bird Loading Report

This form is in use in many operations already and should be utilized if possible.

NTF Animal Care – Bird Handling Observations

This form is a suggestion if an operation does not have reporting forms such as a loading report already in place.

NTF Animal Care – Euthanasia Action Plan

This form is a suggestion if an operation does not have reporting forms already in place.

NTF Animal Care – Farm Condition Report

This form is in use in many operations already and should be utilized if possible.

NTF Animal Care – Pre-Brooding Inspection

This form should be used to inspect the farm prior to unloading new poults.

NTF Animal Care – Grower Serviceman Report

This form is in use in many operations already and should be utilized if possible.

NTF Animal Care – Troubleshooting Form

This form may be used when health and production problems persist and tracking of management details must be started.

NTF Animal Care – Health Check Evaluation

This form is a suggestion if an operation does not have reporting forms already in place.

NTF Animal Care - Loading Report

Grower		Flock #		Toms	Hens	Breeder
Loading Crew #						
Foreman						
Start Time		Date		Was Grower Present (yes or no)		
Finish Time		Weather Conditions				
Range		Sunporch		House	Loaded Inside	Loaded Outside
# Dead Before		# Dead After		# Dead In Loading Area		# Dead Outside Loading Area
Load	Trailer #	Hd Count	House #	Notes		
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
Comments:						

NTF Animal Care – Bird Handling Procedure Observations

Location	Date of Observations Time
Bird Handling/Flock Source/Farm/Bui	Observer
Flock Size – Head Bird Type	Personnel Cleanliness
Age Sex Avg. Wt.	Equipment Sanitation
Manager /Supervisor	Equipment Maintenance
Operating Personnel	Birds Lost Cause/Description
Handling Procedure	Birds Injured Cause/Description
Starting Time Finishing Time	Diagnostic Workup
Equipment Utilized	Acceptable Handling Procedures
Comments:	Not Acceptable Handling Procedure

NTF Animal Care – Euthanasia Action Plan

Farm Name:		
Date:		
Drafted by:		
Place	Method of Choice	Alternative Method
Hatchery		
Poults		
Larger Turkeys		

Post this plan in a centralized area as a guideline for humane euthanasia of turkey on your farm. Remember to review the plan with any new employees and also review the plan annually as a reminder to all personnel.

NTF Animal Care – Farm Condition Report

Grower Name	Date	
House #	Crew Foreman	
Weather Condition		
FARM CONDITION		
Driveway entrance. OK. IF not, explain.		
Farm road. OK. IF not, explain.		
Loading and turn around area. OK. IF not, explain.		
Grass mowed around loading area? YES NO		
Tractor available? YES NO		
HOUSE CONDITION		
Fans on? YES NO		
Fans all Running? YES NO How many not running?		
Curtains up? Curtains down?		
Lights working? YES NO How many working? How many not working?		
Feed lines up and out of the way? YES NO		
Any obstacles in the house that could damage birds during loading? YES NO If yes, explain:		
Litter condition: Wet? _____ Wet and caked? _____ Dry? _____ Dry and caked? _____ Dry and Dusty? _____ Any mud holes or wet spots? YES NO If yes, in which area of the house?		
Feed in pans? None Small handful More than a handful Full feeder		
Turkeys sprayed with water during loading? YES NO		
DEAD BIRDS IN HOUSE	Upon Arrival	Upon Departure
House #		
COMMENTS:		

NTF Animal Care – Pre-Brooding Inspection

Farm/Building Location		Date
Inspected by:		
CHECKED by:	SYSTEMS CONCERNS & COMMENTS	
Farm Maint. Mgr. Mgr.	OUTSIDE:	
		Junk and combustibles
		Weeds and grass mowed
		Rodent barrier perimeter in place
		Feed spills cleaned up
		Metal building skin in good repair
		Ventilation openings bird proof and closed tight
		Ventilation openings & equipment free of dirt & debris
		Building grounded
		Biosecurity sign in place
	PROPANE / FUEL Storage & Supply System:	
		Valves identified and marked
		Storage is full
		Gauges work
		Fire extinguisher checked
		No smoking sign
		Vaporizer maintained
		Oil trap drained
	SERVICE/SANITATION ENTRYWAY	
		Security locked off-hours
		Space heater maintained
		Fire extinguisher checked
		Safety and No Smoking signs.
		Metal covered waste can
		Electric entrance enclosure clean, labeled and closed
		Electric devices are clean and cool

NTF Animal Care – Pre-Brooding Inspection (Continued)

	Water systems & medicators serviced & clean
	Written policy/procedures up to date
	Emergency phone numbers
	INSIDE BUILDING
	Free of wild birds
	Rodenticide stations replenished
	Perimeter, mud boards, drop planks in good repair
	Structural poles, rafters, etc.
	Lining, insulation, peckboard
	Doors in good repair
	Ventilation openings
	Fire extinguisher
	VENTILATION
	Fans clean and serviced
	Fan louvers in good repair
	Side wall curtains maintained
	Ventilation doors/gates maintained
	GAS PIPING
	Piping intact & secure
	Checked for leaks
	Valves in good repair
	Regulators maintained & vented
	Checked for gas leaks
	Oil traps drained
	BROODER STOVES
	Hoses not cracked or kinked
	Hose clamps tight
	Suspension is secure
	Safety chain on stoves

NTF Animal Care – Pre-Brooding Inspection (Continued)

	Safety chain on suspension system
	Gas control valve operational
	Pilot, ignition, ceramics OK
	SPACE HEATERS
	Gas supply maintained
	Cleaned and maintained
	Pilot, ignition operational
	Control operational
	Checked for gas leaks
	ELECTRICAL
	Connection boxes cool, dust tight & secure
	UF cable, secured, intact & not cracked
	Lights dust tight & operational
	SJ cord intact, not cracked
	Thermostats clean, dust tight
	Controllers clean & dust tight
	Ventilation motors cleaned
	Feed & fill line motors cleaned
	Micro-switches checked or replaced
	Shockers and lines operational
	FEEDING SYSTEM
	Feed tank cleaned & sanitized
	Feed and fill lines maintained
	Control pans operational
	Suspension system maintained
	WATER SYSTEM
	Shock treatment completed
	Fountains cleaned & operational
	Pumps & medicators maintained
	Chlorinators operational

NTF Animal Care – Grower Service Report

Grower Name	Date	Time	Serviceman					
Flock #	Type of Turkeys				Age of Birds			
House #	Talk With Grower? YES NO							
Good? (YES/NO) COMMENTS ON OPPORTUNITITES FOR IMPROVEMENT								
Driveways								
Surroundings								
Bulk Tanks								
Dead Disposal								
Pumphouse								
Pest Control								
Medicator								
Brooders								
Heaters								
Fans								
Curtains								
Vent. Controls								
Curtain Dropper								
Feeders								
Waterers								
Lights								
Litter								
Culled								
Records								
HEALTH REPORT								
Birds Posted?	YES	NO	#	Diagnostic Lab?	YES	NO	#	
Disease:				Medication:				
Treatment Recommendations:								
MORTALITY REPORT								
House	Day	Week	House	Day	Week	House	Day	Week

NTF Animal Care - Troubleshooting Form

Grower Name	Date	Time	Serviceman
Flock #	Date of Last Visit		Age of Birds
Grower Present?			Type of Turkeys
HOUSE			
House #	Temperature	Ventilation: Curtains or Fans?	
Litter			
Waterers/Chlorine Level			
Feeders			
Rodents? Rodent Holes? Wild Birds?			
Flies? Beetles?			
Grass Mowed? Trash Picked Up?			
BIRDS			
Mortality			
Culls			
Leg Soundness			
Bowel Conditions Fecal Samples Taken?			
Signs of Worms?			
Signs of Disease?			
Medication Indicated?			
Medication Tank Condition (Clean of Dirty)			
Pump House Condition (Clean of Dirty)			
COMMENTS/RECOMMENDATIONS:			

NTF Animal Care – Health Check and Evaluation

	√	Acceptable	Note Exceptions
<i>Flock Inspection</i>			
		Birds Follow personnel & preen	
		Alert Flock	
		Round prominent eyes	
		Good activity	
		Clean (white) feathers	
		Dead or cull birds are not evident	
		Normal breathing	
<i>Building & Environment</i>			
		Fresh clean air	
		Comfortable temperature	
		Quiet	
		Good lighting	
<i>Ventilation System</i>			
		Clean system	
		100% operable	
<i>Litter</i>			
		Litter is even throughout	
		Litter is clear of all objects	
		Moist but doesn't ball easily	
		Doesn't dust when disturbed	
<i>Droppings</i>			
		Moist but firm fecal droppings	
		Formed fecal droppings with viscous white cap material	
		Very few cecal droppings	
		Viscous, dark cecal droppings	
<i>Morbid or Dead Birds</i>			
Morbidity		None	
Mortality		Very few birds per day	
Description			
Autopsy Results			
<i>Comments</i>			

Industry Performance Goals

The turkey industry is variable, making it difficult to have specific industry standards for many critical animal care points. While 1 percent DOAs may be appropriate for many operations and the industry on average, a higher threshold may be appropriate for growing operations further from processing plants. Similarly, four major classes of market turkeys—heavy or light toms, heavy hens or consumer hens—should all have different standards of performance for many critical animal care points including mortality, condemnations, processing defects and space requirements.

Internal control systems and review of specific records relating to flock welfare are essential for effective monitoring and feedback. Key values to examine include: livability of poults and growing turkeys body weight and uniformity relative to breed standard; defective stunning; and incomplete exsanguinations. The origin of defects should be noted and related to predetermined standards for the operation with continuous improvement in mind.

An alternative way to arrive at performance goals for a specific operation would be to initiate Statistical Process Control, which provides a method of managing and improving processes using basic statistical techniques. For example, when measurements of critical animal care points vary from a company's norm more than a pre-set amount, corrective action should be initiated.

Space Requirements

While establishing a measurable/auditable value for a stocking density standard for the entire turkey industry would seem to be easily obtainable; in fact, due to the various production environments and span of bird sizes produced, definitive and quantitative measurements are not necessarily feasible. However, 15 lbs/ft² could be used as a measurable standard.

The specific value for auditing stocking density should be used as a guide and not a set standard for every establishment without considering variation between each establishment. Individual establishment may incorporate new technologies, which allow for higher stocking density than other establishments. Also, unavoidable situations may result in higher stocking densities and should be allowed under the given situation. The NTF ACG is considered a living document and can be modified by individual establishments to accommodate their specific needs. While some establishments may maintain a smaller space requirement than others, the comparison should be made using outcome assessment and should be judged by qualified individuals who have poultry production experience.

National Turkey Federation

Animal Care Audit Checklist

Updated:4 November 2008

National Turkey Federation

Animal Care Audit Checklist

Production

The following checklist is provided to assist turkey companies in complying with the Animal Welfare Guidelines recommended by the National Turkey Federation and voluntarily adopted by this company.

This audit applies to the following company, complex or facility:

Auditor: _____ Company and Plant _____ Est. No.: _____

Address: _____ Phone: _____ Fax: _____

Date: _____ Accompanied by: _____

Title _____

Summary:

Area	Maximum Score			Facility Score		
	Category A	Category B	Max Total	Category A	Category B	Total
Education and training	50	50	100			
Hatchery	125	0	125			
Nutrition and Feeding	125	25	150			
Comfort & Shelter	0	175	175			
Health Care	50	25	75			
Normal Behavior	0	75	75			
On-Farm Best Practices	0	75	75			
TOTAL	350	425	775			

Scoring by Category: Items are ranked by speed with which deficiencies must be corrected. Any deficiency (less than 90 percent for Category A and less than 80 percent for Category B score) requires follow-up as follows: Category A: 30 days; Category B 6 months.

Area	Guideline	Category	Measurement/Verification	Max Score	Facility Score	Comments
Education and training				100		
Designated management	Designated person or management group in charge of animal welfare practices.	B	Identify designated person or management group	50		
Required training	Personnel involved in handling live birds should receive sufficient training.	A	Verify training program by designated management.	50		
Hatchery				125		
Emergency ventilation	Emergency system or procedure to provide adequate ventilation in the event of a power failure.	A	Verify system operational to provide emergency ventilation.	20		
Culling	Poults unlikely to thrive should be euthanized.	A	Observe recommended methods of euthanasia. As much as possible, methods should follow recommendations in NTF's <i>On-Farm Euthanasia of Turkeys (2000)</i> .	20		
Equipment	Set up to euthanize live birds in eggshell waste.	A	Equipment must be set up and working to receive all eggshell waste.	20		
Beak conditioning	Preventative beak conditioning, when used to minimize injury to birds, to minimize stress, be performed by well-trained personnel using properly designed and maintained equipment.	A	Verify personnel training and proper equipment and procedure. Equipment is maintained and operating per manufacturer specification. Verification step at the hatchery QC. Verification step in the field by servicemen QC.	25		

National Turkey Federation

Animal Care Audit Checklist

Updated:4 November 2008

Area	Guideline	Category	Measurement/Verification	Max Score	Facility Score	Comments
Toenail conditioning	Toenail conditioning, when used to minimize injury to birds, to be accomplished to minimize stress and be performed by well-trained personnel using properly designed and maintained equipment.	A	A Verify personnel training and proper equipment.	20		
Poult injection	Performed by trained personnel or automated equipment.	A	Verify personnel training and proper equipment. Equipment is sanitized, calibrated and functioning properly.	20		
Nutrition and Feeding				150		
Adequate diet and nutrition	Formulated and fed to prevent predictable signs of nutritional deficiency and to promote good health and desired production.	B	Diet reviewed by professional turkey industry nutritionist.	25		
Adequate water supply	Permit normal hydration.	A	There are a variety of commercial drinkers used in production. Minimum requirements as specified by company program.	25		
Access to water	Adequate access for all birds.	A	Birds should have unrestricted access to drinkers as specified by company program.	25		
Access to feed	Adequate access for all birds.	A	Minimum number of feeders as specified by the company program.	25		
Access to feed	Adequate access for all birds.	A	Birds should have unrestricted access to feeders as specified by company program.	25		
Feed mill	Meet good Manufacturing practices.	A	Feed mill must have current FDA registration.	25		

Area	Guideline	Category	Measurement/Verification	Max Score	Facility Score	Comments
Comfort & Shelter				175		
Housing condition	Protects birds from anticipated environmental conditions.	B	Not measurable, but observe for evidence that facility is in good repair.	25		
Vermin control	Rodent control program should be in place.	B	Yes/no	25		
Ventilation	Quality air; remove noxious gases.	B	Verify system to provide adequate ventilation. Ammonia standard is less than 25 ppm on weighted average of day and measured at bird level.	50		
Litter condition	Moisture not excessive	B	Litter (a sampling of five locations located in the middle of the house, not directly under a feeder or drinker) is loosely compacted in the hand when squeezed; birds are not excessively wet or dirty.	50		
Emergency ventilation	Emergency system or procedure to provide adequate ventilation in the event of a power failure.	B	Verify system to provide emergency ventilation. Backup generator should be in working condition. When in place, curtain drops should be in working condition.	25		
Health Care				75		
Veterinary care	Qualified veterinary care should be available	A	Identify veterinarian	25		
Health	A disease prevention program should be followed.	B	Verify disease program documentation.	25		
Mortality disposal	In accordance with local laws and regulations.	A	Yes	25		
Area	Guideline	Category	Measurement/Verification	Max Score	Facility Score	Comments

National Turkey Federation

Animal Care Audit Checklist

Updated: 4 November 2008

Normal Behavior				75		
Roaming space	Birds free to roam throughout growing area.	B	Stocking density should be adequate for maximum performance and health according to company program. NTF ACG provides a 15 lbs/ft ² stocking density. Birds should move easily when nudged gently.	75		
On-Farm Best Practices				75		
Inspection	Inspect flocks daily.	B	Verify mortality records Exist; mortality properly recorded and removed daily.	25		
On-Farm euthanasia	Birds unlikely to thrive or unable to reach food and water due to leg or other chronic problems should be euthanized.	B	Use approved humane method. Methods should follow recommendations in NTF's <i>On-Farm Euthanasia of Turkeys (2000)</i> .	25		
Light	Adequate light should be available.	B	Verify company has lighting program in place.	25		