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National Turkey Federation

Animal Care Guidelines for the Production of Turkeys

Thank you for your interest in the *National Turkey Federation's (NTF) Animal Care Guidelines* for the production of turkeys. These guidelines represent the most up-to-date scientific information available on ensuring the health and wellbeing of turkeys. These documents will be updated as new scientific data, technologies or processes become available. The number one goal of the turkey industry is to provide a safe, nutritious, affordable product for its customers. In order to accomplish this goal, it is imperative that the turkeys raised are treated humanely and are provided expert veterinary care.

The turkey industry has long held that appropriate treatment of turkeys is a necessary part of production and national guidelines have been in place in the industry since the late 1980s.

The most recent guidelines, developed by leading turkey industry experts, have been reviewed and approved by numerous third-party scientific reviews. The NTF Turkey Veterinarians and the Live Production committees have carefully examined the *NTF Animal Care Guideline*s and have determined that they are feasible and based on sound science. The Federation's Board of Directors then endorsed the guidelines and the industry's use of the documents at the NTF Annual Convention in February 2004.

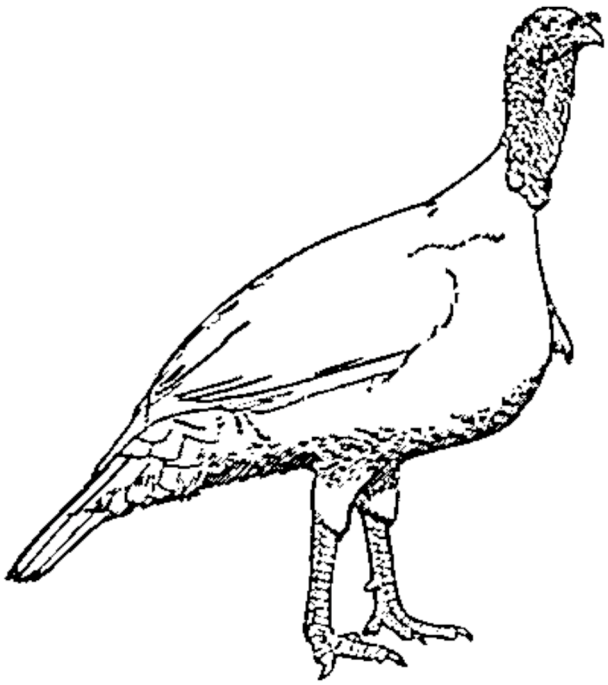
Third-party scientific reviews by the Federation of Animal Science Societies Animal Welfare Committee and the American Association of Avian Pathologists (AAAP) Welfare Subcommittee and the AAAP Board of Directors received approval and support. Both organizations praised the *NTF Animal Care Guidelines* as a well-written document and a model program for the turkey industry to follow.

Please feel free to contact either Michael Rybolt (mrybolt@turkeyfed.org) or Sherrie Rosenblatt (srosenblatt@turkeyfed.org) if you have any questions pertaining to these guidelines.

Suite 400 • 1225 New York Avenue, NW • Washington, DC 20005 • TEL: (202)898-0100 • FAX: (202)898-0203

National Turkey Federation

Animal Care Best Management Practices - For the Production of Turkeys



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Preamble

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.

Acknowledgements

These guidelines were produced under the guidance of the NTF Animal Welfare Subcommittee – Drs. Eric Gonder, David Mills, Steven Clark, Larry Pickering, James Barton, Richard Atkin, and Shannon Jennings. Members of NTF's Live Production Committee, turkey veterinarians and Technical and Regulatory Committee were also involved in the development, review and adoption of the AC-BMP Manual as well as the NTF staff and P.E. Poss, D.V.M.

Last edited July, 2004

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

Background and Introduction

1. Purpose and Objectives
    a. An*imal Care Best Management Practices for the Production of Turkeys* (AC-BMP) 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 AC-BMP
    a. Members and affiliates of NTF can access the AC-BMP 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 regulation related to the health and well-being of agricultural animals vary. 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 AC-BMP
    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:
    2) Module A: Foundation and Multiplier Breeding
    3) Module B: Commercial Hatching
    4) Module C: Meat Production and Grow-Out
    5) Module D: Live-haul
    6) Module E: Feed Manufacturing and Delivery

11. Animal Care Best Management Practices for Turkey Production
    a. The AC-BMP 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 AC-BMP deals with the processing plant. (The letter "G" was used to avoid confusion.)
    b. Each Module of the AC-BMP 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. AC-BMP – A Dynamic Ongoing Process
    a. The development of AC-BMP is an evolving, dynamic ongoing process. AC-BMP 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:
        2) 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 these criteria:

        1) "Animal Care Principals" – on the Alliance Web site: 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.

3) 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.

4) 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.

5) FASS – Federation of Animal Science Societies

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.

6) FDA – Food and Drug Administration
7) FMI – Food Marketing Institute
8) MWPS – Midwest Planning Service
9) NRAES – Northeast Regional Agricultural Engineering Service
10) NRC – National Research Council
11) OSHA – Occupational Safety and Health Administration
12) NCCR – National Council of Chain Restaurants

b. Coalitions;
2) FMI/NCRR
3) FASS-ARPAS

c. Other Acronyms:

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

9) 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:

2) Animal Welfare Audits, NSF-Cook and Thurber, Middleton, WI, 2002 <cookandthurber.com>.
3) Downgrade Diagnostics Services, Poultry Intellimetrics, Inc., Paynesville, MN, Greg Hansen, president, 320-243-3506.
4) 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.
5) Euthanasia and Slaughter of Livestock, Temple Grandin, Ph.D., Colorado, *Journal of the AVMA*, Vol 204 (1944) 1354-1360.
6) *Feed Additive Compendium*, Miller Publishing Co., Minnetonka, MN, and Animal Health Institute, Alexandria, VA, An annual publication.
7) Generic Environmental Impact Statement, Minnesota Environmental Quality Board, July 2002.
8) Induced Molting of Layer Birds, AVMA Policy Statements and Guidelines, AVMA Membership Directory and Resource Manual, pp. 77, 2003.
9) Judicious Use of Antimicrobials for Poultry Veterinarians, FDA, Center for Veterinary Medicine, March 2001.
10) *Nutrient Requirements of Poultry*, 9th Revison, National Research Council, 1994, National Academy Press, Washington, DC.
11) On-Farm Euthanasia of Turkeys, Considerations for Producers and Veterinarians, NTF, September 2000.
12) Poultry Programs Guidelines for Conducting United Egg Producers (UEP) Animal Husbandry Audits, Atlanta, GA, December 20, 2002.
13) Poultry Welfare Issues, Inma Estevez, Ph.D., University of Maryland, *Poultry Digest Online*, Vol 3, No. 2, 2003.
14) Poult Services Equipment, Nova-Tech Engineering, Inc., Willmar, MN, James Sieben, vice president, 320-231-9668 .
15) 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.

Figure 1A. Foundation and Multiplier Breeder – Module A Flow Chart

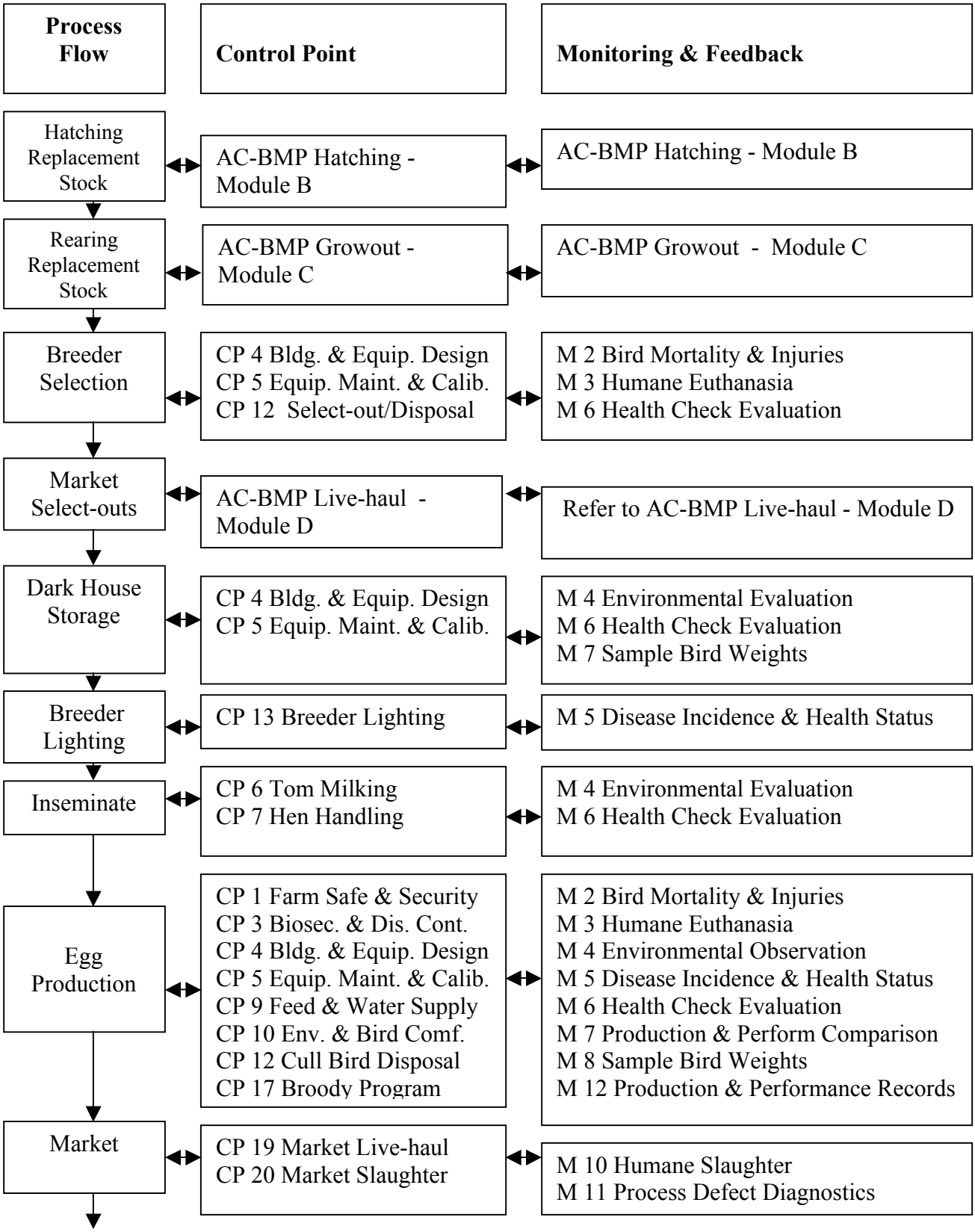
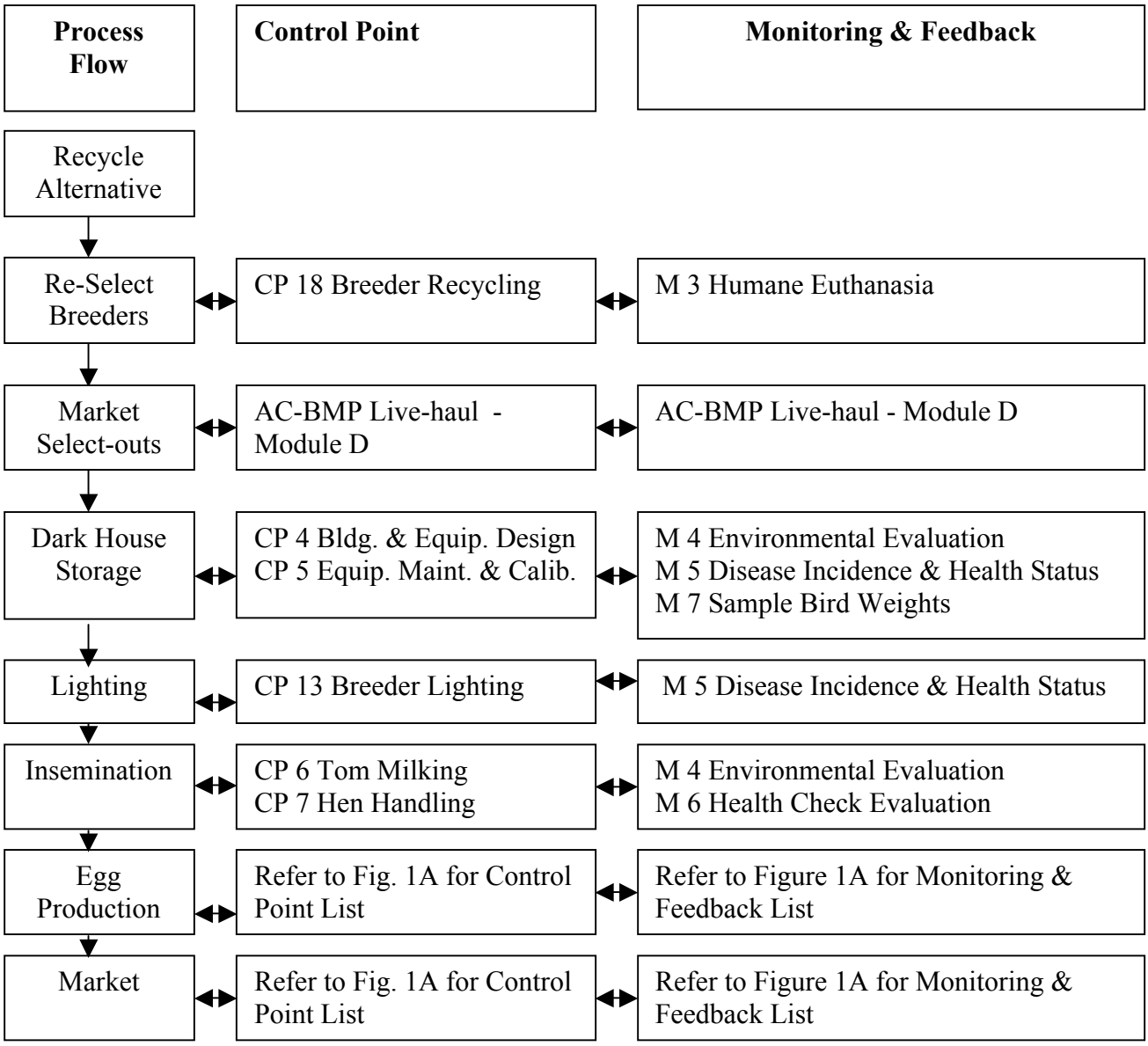


Figure 1B. Foundation and Multiplier Breeders – Module A Flow-Chart



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

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

Figure 2. Turkey Hatching – Module B Flow Chart

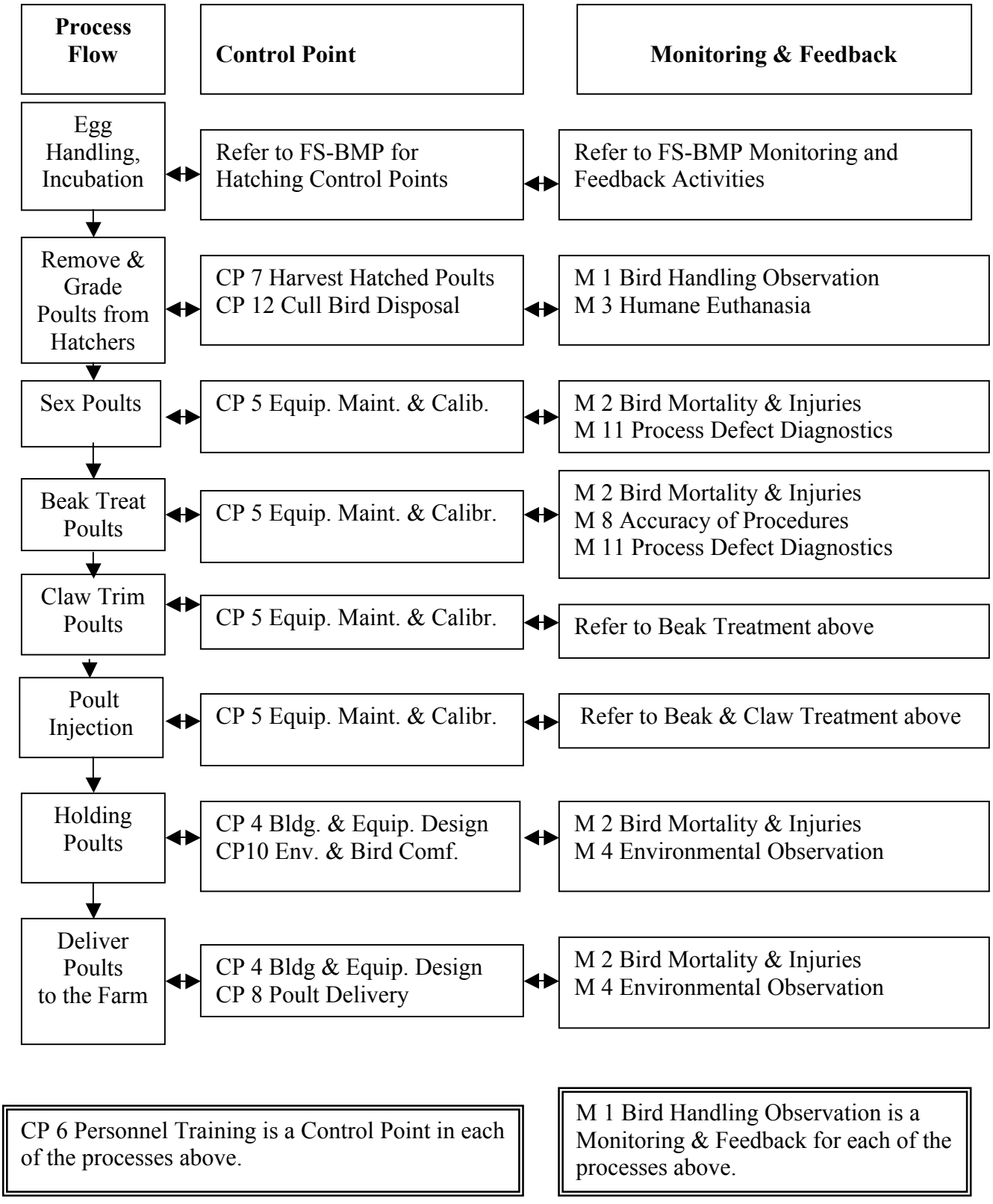


Figure 3. Production and Growout – Module C Flow Chart

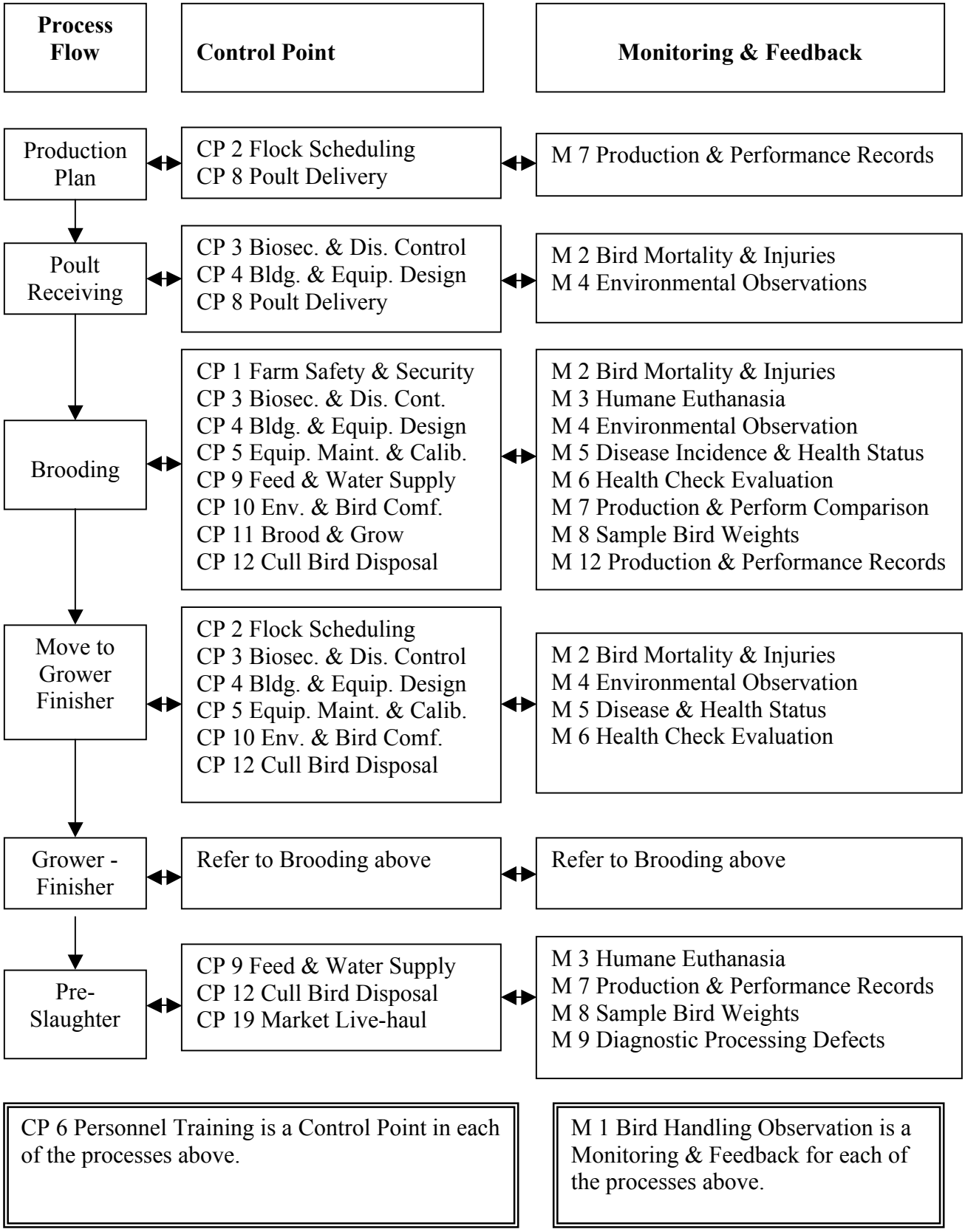
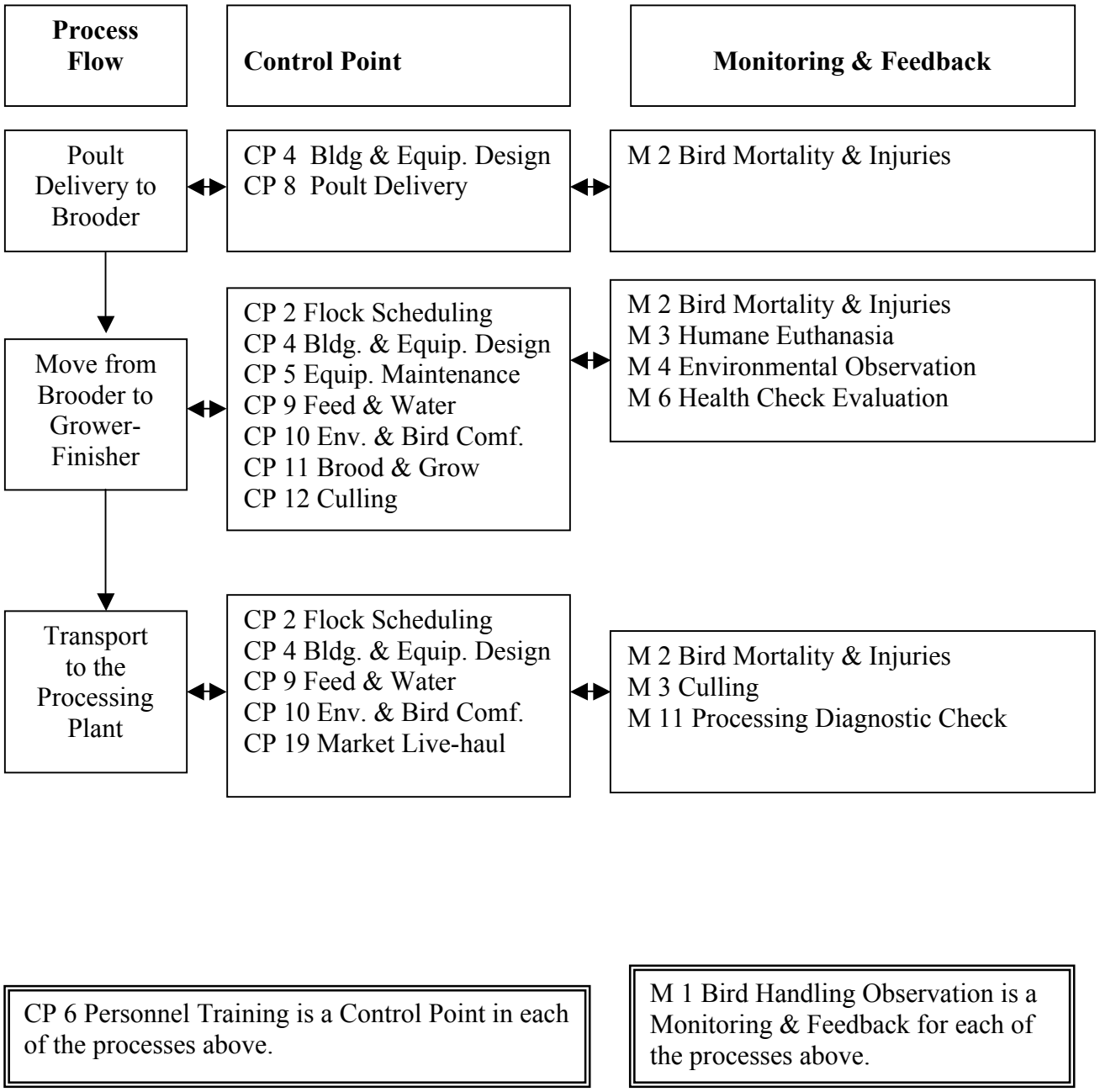


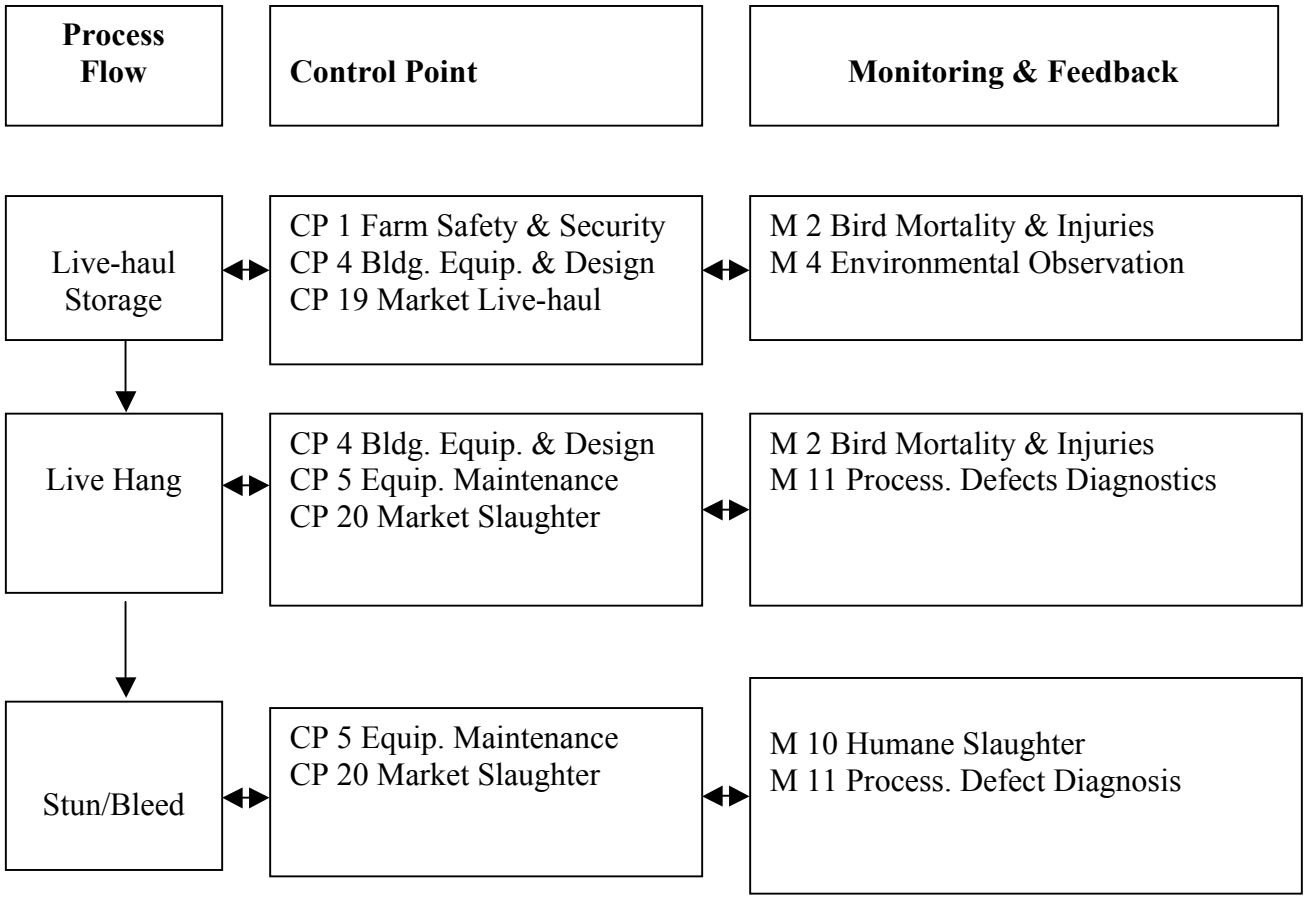
Figure 4. Live-haul Transportation – Module D Flow Chart



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

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

Figure 5. Processing Plant – Module G Flow Chart



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

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

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.
      i. All doors and ventilation openings must be screened to prevent wild birds from entering the buildings.
      ii. 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.
      iii. Beetle control is practiced on each flock.
      iv. Rodent protection must be built into the perimeter of the building and the operation should have a rodent control program.
      v. An evaluation of each building should be made periodically and repairs completed to maintain the building in a bird- and animal-proof condition.
      vi. "No Admittance" signs on each building will help in control of people traffic on the farm.
      vii. 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.
      viii. 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.
      ix. 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.
      x. 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.
      xi. Training programs that include biosecurity procedures are required for all new employees prior to entering the farm. Training updates are required for all employees.
      xii. A biosecurity checklist is maintained and is posted for flock caretakers and farm managers.
      xiii. 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.
   b. Poultry veterinary expertise is necessary to apply appropriate disease diagnosis and control to each flock.
      i. Vaccination may be required to control specific diseases. Usually the vaccine is administered via drinking water or aerosol.
         1) 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.

2) 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).

2. Birds may be humanely euthanized when necessary to aid disease diagnosis (See CP 12).

CP 4. Building Facilities and Equipment Design

1. General
   a. Equipment and buildings must be designed, maintained and operated to avoid stress or injury to the birds.
   b. 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.
   c. Hurdles, gates and chutes must be kept free of splinters and sharp corners that cause bird injuries.
   d. Equipment must be cleaned to prevent the transmission of disease between flocks and farms.
2. Breeders
   a. Appropriate housing will increase the comfort level of the birds and increase productivity.
   b. Light management of breeder replacements requires special, tightly sealed light-controlled housing. Due to the closed nature of such housing, care must be taken to ensure adequate ventilation and temperature control.
   c. Equipment to supply feed and water to all birds during the shorter day length must be provided.
3. 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.
4. 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.
5. Live-haul
   a. Truck trailers and coops used to transport birds must be cleaned and sanitized and should not cause injury to the birds.
      i. The floor of the coops should be intact, not slippery and easy to clean.
      ii. The doors of the coops must be maintained to prevent birds from escaping or causing injury.
      iii. The bottom of the poult boxes should be lined with corrugated cardboard or excelsior pads to provide traction and padding.

b. Loading equipment should be free of sharp corners or protrusions that can injure birds.
c. Chasing or herding aids are important to move birds with minimal agitation.
    i. Herders can use a stick with a large lightweight, somewhat noisy object attached to the end, such as a light or bright colored plastic garbage bag, empty plastic jug or other plastic material.
    ii. Brightly colored hose, tapes or tarps can be utilized to serve as a passive barrier to bird movement.
d. Live-haul holding areas must provide protection from inclement weather. Fans and foggers may be necessary to cool the birds in warm climates.

6. Processing Plant
    a. The receiving line should have the right size shackles for the birds being processed. The shackle line should operate quietly and smoothly with subdued light to minimize bird activity.
    b. Quieting belts and curtains to block views are helpful in keeping the birds quiet.
    c. Lighting should be adjustable to provide for dim or colored light as appropriate to help quiet the birds.
    d. Air circulation in the receiving area is important for both personnel and the birds.
    e. Receiving area design and maintenance should maximize comfort of personnel to reduce individual frustration that may result in rough handling of birds, which is unacceptable.

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. Breeders
    a. Breeder selection and insemination involve a significant amount of herding and handling of valuable breeding stock. The equipment must be clean, operational and appropriately calibrated so that down time or repeat handling for repair or correction is not necessary.
3. 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 7 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.

1) 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.

2) 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 erode away as the bird uses the beak normally. As the bird matures the upper beak remains somewhat shorter and has no sharp edges.

iv. 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 euthanized the bird or cause trimming or downgrading in the processing plant.

1) 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.

2) 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.

3) 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.

4) 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.

4. 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 AC-BMP 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 poults 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 poults 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 poults left in the debris.
    a. High speed maceration or grinding results in immediate death for unhatched embryos or newly hatched non-viable poults.
    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 poults' 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 poults to heat, water and feed during the first days of brooding and is important to prevent starvation or dehydration of poults. Poults are altricious 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. Poults 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. Pre-market feed withdrawal time is based on the combined recommendations of the processing plant manager, field staff and grower to meet the sanitation requirement in the plant without stressing the birds. Evidence of distress due to feed withdrawal is unacceptable. Feed withdrawal should not exceed 24 hours before processing.
   c. 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 manufacturers 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 poults. 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 psychometric 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 then 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.
5. 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.

CP 13 Breeder Lighting

1. The age and management of lighting as to intensity and time of day for hens and toms should be determined in consultation with the breeder stock provider.
2. The management of lighting and ovarian development prior to production causes significant stress. More attention to the environment and husbandry is required during this period.

CP 14 Breeder Tom Milking

1. Handling large mature breeder toms for semen collection requires very well trained personnel and well designed buildings and equipment to minimize stress and prevent injury to the toms. Decreases in production or any injuries should be promptly investigated.
2. Toms should be handled carefully during the semen collection process. Turkeys should be caught, then kept from struggling by securing and supporting both legs with one hand and grasping a wing with the other hand.
3. Semen storage and mixing of semen extenders must be done carefully to prevent contamination or infection of the hen's reproductive tract.

CP 15 Breeder Hen Handling

1. Handling mature breeder hens for artificial insemination requires very well trained personnel and well designed buildings and equipment set up to minimize stress and injury to the hens. Decreases in production or any injuries should be promptly investigated.
2. Hens should be handled carefully during this process. Turkeys should be caught, then kept from struggling by securing and supporting both legs with one hand and grasping a wing with the other hand. Holding the hens in position for insemination must be done carefully to prevent injury to the bird and contamination or infection of the reproductive tract.

3. Temperature and dust control are very important during the procedure for the comfort of both birds and personnel. Each facility should be prepared to adapt equipment and building management requirements to meet these needs while inseminating.

CP 16 Egg Production

1. Egg-laying nests should be well maintained to prevent injury to the birds.
2. Removal of injured, sick hens should be done on a daily basis. They should be culled or placed in a recovery pen depending on the severity of the problem and chances of rehabilitation.
3. Otherwise healthy, but nonproductive hens may be penned separately, recycled or shipped to market.
4. Maintain up-to-date training information and conduct periodic training sessions for workers on production procedures, guidelines, schedules, etc.
5. Construction and Repair Work
    a. Have a routine plan for inspection, preventive maintenance and scheduling of construction and repair work so that it can be conducted when animals are not in the facility.
    b. Clean up all construction waste and materials that may be consumed by or injure the animals before putting animals back into the area.
6. Day-to-Day Animal Care
    a. Follow good management and husbandry practices that maintain control of all aspects of production to prevent injury to livestock.
    b. Exercise control and care in the use of vaccination and other medical procedures to prevent injury to the birds.

CP 17 Broody Behavior Control

1. Broodiness is the natural tendency for hens to set on a nest and hatch eggs, but it depresses egg production.
2. Removing hens from the nest after they lay an egg helps prevent broodiness but it must be done without injuring the hen. Those facilities that utilize egg-laying nests that incorporate floor tipping or sweep mechanisms must ensure that the design or action does not cause injury.
3. Changing the environment is important to disrupt broody behavior, but the severity of the changes made must consider the well-being of the bird. Changes in lighting, floor type, pen configuration, and feeder and watering equipment are preferred to temperature and air velocity changes. Obvious bird distress is unnecessary and unacceptable.

CP 18 Breeder Recycling

1. An alternative to marketing a spent breeder flock is to select healthy birds for recycling from the flock.
2. Only healthy normal birds without defects should be recycled.
3. Molting is a natural process where a bird gets rid of old feathers and gains new feathers. They molt most frequently when they are young, since the feathers must naturally

become larger and change function as the birds grow. Broken and disheveled feathers cannot be repaired, so about once a year birds systematically drop and replace feathers. Most birds molt annually, though there is some fluctuation between species. In the wild, many birds also molt before and after breeding season, and they then have bright, attractive feathers while finding a mate.

4. Molting breeder flocks is a necessary production procedure in the turkey industry. The most important reason is the need to synchronize the molt to provide a predictable supply of new poults.
5. The molting procedure results in a loss of excess body fat that has accumulated during egg production. The molt or resting period rejuvenates the birds and their reproductive organs after which they can be stimulated with light to enter another productive season of laying hatching eggs.
6. The selected birds are housed in dark rooms. They are lit again after an appropriate rest period, usually 10 to 12 weeks.
7. Reducing ambient light, and withholding feed and sometimes water for a short period of time are necessary tools to stop ovarian activity and begin a complete and successful molt.
    a. Feed withdrawal and weight loss are critical to initiate the molt. Providing a controlled and balanced diet utilizing fiber and energy levels to obtain weight goals reduces body fat and weight. Withholding drinking water for a short period of time, depending on environmental conditions and temperature, is also an important and effective tool that complements feed withdrawal in initiating a successful molt. The birds may drink excessively during the initial stages of feed withdrawal, resulting in wet litter. This should be anticipated and corrected as appropriate to maintain comfortable condition for the birds.
    b. Environmental temperature may need to be adjusted to fit the needs of a bird that is losing weight.
8. Research into improved methods of inducing and maintaining a successful molt is ongoing and new technology is utilized as it becomes available.

CP 19 Market Live Haul

1. Market birds are loaded with mechanical loaders. These allow the birds to be taken out of the production building and loaded into coops for transport to the processing plant without enduring the stress of being individually caught and handled.
2. Loading at night has the advantage of usually lower temperatures in hot weather; also, reduced light has a calming affect on the birds. Loading during daylight hours must be closely controlled in warm climates.
3. Live-haul coops must be large enough for the birds to lie down and to move around without being pinned by other birds in the cage.
    a. Gates or doors on each coop must close completely to prevent the accidental escape of birds during transport.
4. Loading crew management should incorporate consideration of ergonomics and include duty rotation of workers to reduce employee stress and the likelihood of injury to birds.
5. The loading process can be stressful to the birds and requires planning and management to prevent injuries, unnecessary stress and discomfort to the birds.

6. The loading procedure must be done in a quiet manner.
7. The number of birds placed per coop will vary with the equipment, weather, temperature, humidity, bird size, sex, distance to the plant, time of kill and health status of the flock. The loading crew must be provided with explicit instructions on the number to be loaded per coop to meet the needs of the birds and prevent bird damage and DOAs (Dead on Arrival) at the processing plant. Space must be provided so the birds can freely move their heads around and so all can rest on the coop floor simultaneously, without climbing on top each other because of too little space. However, too few birds in a coop can result in stress and injury due to too much movement causing bruising and/or chilling during cold weather when they need each other's warmth. The number of birds per coop should be an actively managed, responsive decision in most climates.
8. Turkeys should be supported to reduce struggling as the bird is placed in the coop without hitting the sides or edges of the coop.
9. Escaped or dropped birds should be retrieved and all coop doors secured before the truck leaves the farm.
10. Truck travel, distances, weather and other factors can affect the birds' well-being en route and must considered.
11. Loadout Sanitation – Upon arriving at the farm, chasing and loading crews should be showered and must have clean clothing and vehicles when they travel between farms and flocks. Loading equipment must be cleaned and disinfected with approved disinfectants between farms and flocks. There should be no visible soil or feathers present. Wet manure, even though disinfected, is not acceptable. The equipment includes live haul trucks and trailers, crew trucks, loader trucks, loaders, preloaders, chase panels, gates, fencing, etc. Farm personnel should evaluate non-farm personnel and equipment and not allow entrance to the farm without acceptable preparation.
12. Feed withdrawal should not be excessive. Birds out of feed will eat litter and may drink water to excess, increasing the rate of fecal contamination during processing. Long periods of feed withdrawal have been shown to increase the shed of *Salmonella* organisms in feces. Feed withdrawal should be only long enough to ensure empty crops at the time of slaughter. Pre-market feed withdrawal time is based on the combined recommendations of the processing plant manager, field staff and grower to meet the sanitation requirement in the plant without stressing the birds. Evidence of distress due to feed withdrawal is unacceptable. Feed withdrawal should not exceed 24 hours before processing.
13. Loadout Management. Chasing, loading and hauling must be managed to minimize bird excitement, bruising, scratching and discomfort, which can cause an increase in bird trimming and exposure of edible tissue to fecal contamination during processing. Schedule changes should be immediately communicated to grow-out management so feed withdrawal and loading preparations can be modified, as needed.
14. Live holding storage areas should be equipped to minimize environmental stress. Excitement and high temperature stress increase defecation and result in increased fecal contamination of the birds. Comfortable holding conditions are important. Environmental stress can result in an increase in the shed of pathogenic organisms. Wind protection in winter and water cooling in summer is important to minimize stress.
15. Excessive time on truck must be prevented. An increase in intestinal fluid and higher rate of fecal contamination during processing is associated with excessive time on truck.

Total time on truck, including the length of quiet holding time on the truck, should be considered. The time between loading and slaughter should not exceed 24 hours.

16. Communication Between Plant and Farm. A constant flow of information is necessary between the plant and the farm personnel for load out, to ensure a smooth and safe operation. Bird and weather conditions, number of birds per coop, bird weights, starting time of day, and feed withdrawal time are all important to operational success and to minimizing bird stress.
17. Flocks that may be carrying communicable disease agents should be slaughtered at the end of the week. For example, flocks that have recovered from a contagious diseases such as Avian Influenza should be loaded and hauled to market at the end of the week to prevent the exposure of clean flocks that are loaded that week. The extra down time over the weekend reduces the risk of disease transmission from loading personnel and equipment.

CP 20 Market Slaughter

1. Removing birds from the coops can be stressful for birds and personnel. The receiving area should provide temperature and ventilation control. The area should be operated as quietly as possible with subdued light to minimize bird activity. The shackle line should have minimal turns and corners. Personnel should make every reasonable effort to keep the birds quiet during shackling. Quieting belts and curtains are helpful in keeping the birds calm.
2. The humane slaughter of turkeys requires stunning prior to exsanguination. Effective stunning should result in unconsciousness and insensibility in 99 percent of turkeys processed. Stunning with electrical current is the common method used in turkey slaughter. When it is done correctly the bird becomes instantly unconscious. This produces a still carcass that can be bled and picked with minimal effort and damage.
    a. The electrical power source must be easily adjustable. Many factors affect the electrical requirements on a day-to-day and lot-to-lot basis. The power must be set low enough to prevent fractures or electrocution. If the heart is stopped by electrocution and is not beating, the bird will not bleed out properly resulting in USDA condemnation.
    b. On the other hand, the power must be high enough to result in instant unconsciousness and insensibility. Insensibility can be assessed after stunning. There should be no rhythmic breathing, eye blinking or reflexes to the touch. There may be some gasping movements or uncoordinated reflex limb movements. Since the cause of death is exsanguination, personnel must regularly ensure that birds are being appropriately stunned and bled. Responsive birds entering the scalder without management response is unacceptable.
    c. A second electrical stunner is often used or available when needed, to provide a second stun to ensure that no bird revives during exsanguination and the slaughter continues in a quiet manner.
3. Stunning with various gases, such as carbon dioxide, may replace electrical stunning in some plants. There may be some discomfort during the induction of anesthesia. However, the handling stress involved in shackling is eliminated and the technical difficulties associated with electrical stunning are reduced. These systems require

extensive physical modifications of plant and live-haul equipment, which can be expensive.

4. Feather harvesting must be with clippers if performed prior to stunning.
5. See M 10 for monitoring standards for slaughter.

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

1. The underlying basis for determining acceptability of the environment is determining the comfort level of the birds.
2. A common observation, such as lack of preening and dirty feathers, will indicate a wet litter problem.
3. 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.
   a. Mortality records are maintained on each flock.
   b. 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 CO_2 levels
      v. Appropriate NH_3 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 CO_2 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 well-being 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**

WEEKS	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. Humane Slaughter

1. Slaughter Standards have been developed to facilitate processing plant audits:
   a. Pre-market Feed Withdrawal
      Pre-market feed withdrawal time is based on the combined recommendations of the processing plant manager, field staff and grower to meet the sanitation requirement in the plant without stressing the birds. Evidence of distress due to feed withdrawal is unacceptable. Feed withdrawal should not exceed 24 hours before processing.
   b. Shackle Line
      Removing birds from coops can be stressful for birds and personnel. The receiving area should be well ventilated. Ventilation problems should be corrected immediately. The area should operate quietly with subdued light to minimize bird activity. The shackle line should operate smoothly. Personnel should make every reasonable effort to keep the birds quiet during shackling. Quieting belts and curtains are helpful in keeping the birds calm. At least 99 percent of birds should be shackled properly—suspended by both legs with their backs toward the hanger.
   c. Stunning
      The humane slaughter of turkeys requires stunning prior to bleeding (except for Kosher or Halal slaughter, which have separate guidelines). Proper amperage, voltage and salt solution should be known and checked hourly for the equipment used. In the case of stunning with CO_2 or other gas, proper concentration of the gas should be known and checked each hour of operation. Effective stunning should result in unconsciousness and insensibility (no eye reflex) in 98 percent of a 100-bird sample of turkeys processed.
   d. Slaughter
      Birds should be insensible to pain when killed. Equipment or trained workers should efficiently cut blood vessels to induce bleed-out. Enough time should pass before the bird enters the scalder to ensure bleed-out and death. No more than 2 percent of birds in a 100-bird sample should have to be killed by backup personnel because the

bleeding equipment missed them. Uncut "red birds" emerging from the scalder is an indication of system malfunction. These should be observed in less than 1 percent of birds in a 100-bird sample.

e. Feather Harvest
Feather harvesting should be done after the stunning process unless clippers are used.

f. Broken Bones and Bruises
Birds should be handled to minimize ante mortem broken wings and bruised legs. More than 1 percent ante mortem broken wings in a 100-bird sample indicates rough handling or improper stunning and should be corrected (except in the case of CO_2 stunning where 2.5 percent is the limit— breaks occur just after induction of anesthesia due to convulsive wing flapping in some birds). More than 1 percent of large (more than 1-inch diameter), recent bruises on thighs and drumsticks indicates rough handling and should be corrected. Green trim defects are not fresh and are caused by an injury or activity that occurred on the farm prior to loading and should be addressed there.

2. Utilize the Processing Diagnostics Check Form to assess stunning and bleeding procedures. Observe the procedures for accuracy and acceptability and record the results on the form.
3. Conduct 100-bird line checks, as listed on the form, to determine the percent of missed stun birds, hand-bled birds and birds that awaken in the blood tunnel (approximately 90 seconds after bleeding). This will provide measurements that will help in accessing the accuracy and acceptability of the humane slaughter system.

M 11. Processing Defect Diagnostics

1. During the processing of turkeys into food, any defect found on otherwise wholesome birds is trimmed and discarded as unwholesome condemned parts. A trained diagnostician in the processing plant performs periodic line checks on 100-bird samples to develop a diagnostic grade and defect report. When a defect is trimmed, the diagnostician identifies the location on the bird and type of lesion. A report should be provided that identifies whether the cause of the defect was the farm, live-haul or processing plant activity. This allows the plant to provide feedback to the various personnel involved in these activities so they can make improvements in their job performance.
2. Hatchery handling and services defects that are identified at the plant or in the field:
   a. Beak conditioning (a hatchery activity) is evaluated for accuracy.
      i. Excessively shortened upper beak due to over-trim.
      ii. Eye lesions caused by pecking or feather loss in the vent area and between the shoulders are due to inadequate beak trimming.
   b. Toenail conditioning is observed and evaluated for accuracy.
      i. Shortened toe due to over-trim.
      ii. Skin scratches during grow-out, loading or live-haul due to untrimmed or under-trimmed toes.
3. Farm caused defects are the cumulative result of bird handling and environmental or management factors during brooding and growing on the farm. These are defects that occur prior to loading for market.

a. Old healed bone break on the wing is caused when wings flap against feeders and drinkers while birds are chased or excited.
b. Green trim defects are caused by an injury or activity that occurred on the farm prior to loading. Chasing birds and equipment that is hanging too low contribute to this damage.
    i. Green skin or parts trimmed due to bruising or recent bone break occur on the wing, shoulder, drum, thigh, back or breast. The location provides insight as to where, when and why the lesion occurred.
    ii. Green parts trim due to overexertion and a pulled muscle or stretched tendon occurs on the wing elbow, thigh and leg.
c. Scratch trim with scab formation and rounded partially healed wound edges occur on the farm. Hatchery service inaccuracy as well as unnecessary bird activity can cause this problem.
d. Infections caused by injury or disease on the farm such as synovitis, bumble foot or osteomyelitis.
e. Nutritional or disease factor defects on the farm:
    i. Poor fleshing – thin birds
    ii. Excessive (>.05%) healed old bone breaks
    iii. Excessive (>0.5%) unhealed loading bone breaks
    iv. Curled toes
    v. Bow "cowboy" leg bones
    vi. Air Sac condemnation or salvage (on or off line)
    vii. Turkey osteomyelitis complex (TOC) salvage
    viii. Septicemia toxemia, and synovitis condemnation

4. Live-haul defects caused by loading for market and hauling to the processing plant.
    a. Loading bruises and bone breaks, chasing bruises and stuffing bruises are diagnosed by location on the bird and the presence of swelling and edema in the wound.
    b. Leg coop congestion and leg-out of coop bruises are caused during hauling
    c. Training of live-haul personnel with feedback from the plant diagnostician is important to improving bird damage and humane bird handling.
5. Processing plant defects that occur prior to kill.
    a. Bruises and bone breaks that occur in the plant do not have time to change much prior to kill and are dark in color without swelling or edema present. They occur on the wings and leg primarily due to excessive bird activity and wing flapping. A quiet dark shackling area with smooth line operation and minimum turns is helpful. Training personnel to keep birds quiet is important.
    b. Bruises and damage from pulled muscles and tendons can occur when birds are shackled on only one leg or during plant delays.
    c. Stunning is done by either electricity or carbon dioxide gas. Both are being used in the industry and work well to provide a quick stun that lasts through the bleeding process.
    d. Miss-bleeds are birds that were inadequately bled and continue through the processing process. They are condemned as unwholesome by USDA FSIS inspection personnel. Management and adequate personnel training in the plant can prevent this loss.

Monitor and Feedback Forms

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 – Processing Diagnostic Check
Forms similar to this are in use in many operations already and should be utilized if possible.

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 companies norm more than a pre-set amount, corrective action should be initiated.

Space Requirements

Many observers expect the industry guidelines to include specific space requirements that can be measured. While this would be an easily auditable item, methods used in the turkey production industry are too varied; production takes place in too many different environments, and husbandry spans a broad range of bird sizes; therefore making a definitive and quantitative measurements not neccarily 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 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 accomodate 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.

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 Source/Farm/Building/Flock	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 #		
House #		
House #		
House #		
House #		
House #		
COMMENTS:		

NTF Animal Care – Pre-Brooding Inspection

Farm/Building Location		Date	
Inspected by:			
CHECKED by:		SYSTEMS	CONCERNS & COMMENTS
Farm Mgr.	Maint. 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
Flock Inspection			
		Birds follow personnel & preen	
		Alert flock	
		Round prominent eyes	
		Good activity	
		Clean (white) feathers	
		Dead or cull birds are not evident	
		Normal breathing	
Building & Environment			
		Fresh clean air	
		Comfortable temperature	
		Quiet	
		Good lighting	
Ventilation System			
		Clean system	
		100% operable	
Litter			
		Litter is even throughout	
		Litter is clear of all objects	
		Moist but doesn't ball easily	
		Doesn't dust when disturbed	
Droppings			
		Moist but firm fecal droppings	
		Formed fecal droppings with viscous white cap material	
		Very few cecal droppings	
		Viscous, dark cecal droppings	
Morbid or Dead Birds			
Morbidity		None	
Mortality		Very few birds per day	
Description			
Autopsy Results			
Comments:			

NTF Animal Care – Processing Diagnostics Check

Pre-Slaughter Inspection			USDA Inspection or Trim Station	
Processing Plant Identification			*Growing Defects*	%
			Old bone break - Wing	
Date	Time		Green Bruise - Wing	
Weather conditions			- Leg	
			- Breast	
Outside temperatures			- Back	
Shift	Start Time		- Elbow	
Lot Number (s)			- Shoulder Joint	
			Old Wounds - Wing/Leg	
Farm Source			- Back/Thigh	
Market Type	Sex		- Pecking	
Average Live Weight			Scratches - Wing/Leg	
Live Storage			- Breast	
Trailer No.(s)			- Back/Thigh	
			Leg Synovitis	
Trailers Paneled			Leg - Ruptured Tendon	
Fans operational			Leg Edema	
Sprinkler operation			Breast Blisters	
Coop conditions			Breast Buttons	
Legs – out			Drop Crop	
Chilled/frozen birds			Air Sac Salvage	
Panting/gurgling birds			Wing Synovitis	
Bird Appearance			Osteo Suspects (TOC)	
			Live Haul	
Live Hang			Loading Bruise/Break - Wing	
Hanging procedures			Loading Bruise/Break - Leg	
			Loading Bruise/Break - Back	
Lighting			Chasing Bruise	
Quiet Operation			Loading Scratches	
Stun/Bleed			Stuffing Bruise - Shoulder/Wing	
Stun cabinet: amps	volts		- Leg	
Salt solution: salinity	overflow		- Breast	
Shackle spray			Coop Bruise/Congestion	
Acceptable (adequate) stun			*Live Hang*	
Missed stun	%		Bruise/Break - Wing	
Hand bleeds	%		- Leg	
Waking (@1-2 min.)	%		*Stun/Bleed*	
Other			Shoulder Hemorrhage	
Sexing Error	%		Breast Bone Break	
Feather Pecking	%		Pre-scald/Tunnel Bruise/Break -Wing	
Beak Trim Error	%		Other	
Toe Toenail Trim Error	%		*TOTAL - % Defects*	
TOTAL Defects			*Comments:*	
Comments:				