

ANR-P4 2022

Poultry Production

Safe slaughter and processing of poultry

Poultry and poultry products have been associated with many local and national foodborne disease outbreaks. In Tennessee, at least 21 of these outbreaks from 2000 to 2018 were identified with direct links to poultry and poultry products. In most part, bacterial contamination of poultry originates from the environment where birds are raised, including feed. During slaughter, pathogenic bacteria from the gut microbiota, the slaughter environment, and the equipment used are primary sources of contamination of poultry carcasses at slaughter. Processing the poultry is regulated under state and/or federal agencies. However, there are exemptions for small operations from certain aspects of state and federal regulations. The information provided in this factsheet is recommendations of practices to improve on-farm processing of poultry. These recommendations do not replace the regulatory requirements for poultry processing, and careful adherence to local and national regulations are required for the processing and sale of poultry and poultry products.

Supplies needed

1. Latex gloves
2. Bleach water (Spray bottle)
3. Several sharp knives and a good sharpener
4. Clean buckets
5. Slaughter cones
6. Plucking machine (optional) but recommended
7. Plastic top tables or stainless steel tables if available.
8. Large containers for chilling tank
9. Ice and lots of it*
10. Shrink-wrap bags or vacuum seal bags
11. Turkey fry pot to shrink wrap in
12. Zip ties
13. A good thermometer
14. Rubber boots
15. Disposable aprons
16. Tongs or pliers to hold the top of shrink wrap bags



Poultry slaughter cone

*One option for ensuring you have enough ice is to save milk jugs or other food-grade 1-gallon jugs and pre-freeze them. Make sure to remove the plastic from around the ice before using it to ensure colder temperatures. Alternatively, food-grade 5-gallon buckets can also be filled with water and frozen. Allow 15 minutes to thaw and ice can easily be removed. Save this ice at least 1 week before slaughtering your birds.

Steps for slaughtering chickens

1. Pull feed away from birds 8-12 hrs. before slaughter of birds in confinement or controlled conditions. However, you may require longer withdrawal time if birds are subjected to stress conditions prior to feed withdrawal. Longer feed withdrawal periods can also compromise the integrity of the intestines and lead to increased chance of contamination at slaughter (Bilgili, 2002).

2. Have slaughter cones in place before bringing in the birds to the slaughter facility.

3. Insert birds into the slaughter cones with their heads facing the narrow end of the cone; pull their heads through the narrow opening of the cone.

4. Gently but firmly pull the head until the neck is available to cut on either side. This allows easy access to the jugular veins. Make the incisions and allow the bird to bleed out completely. Don't remove the head.

Electric Chicken Plucker



Photo source: Home Depot®

5. Take the bird to the scalding pot. Water MUST NOT exceed 147°F. If the water is too hot, the skin will tear very easily while plucking. Dip the bird into the scalding water two to three times while also swirling it around in the water until the wing feathers are easy to remove by a gentle tug. Dip the chicken up to where the feathers and the scales meet on the leg.

6. Next, insert the bird into your plucking machine or pluck by hand. If you have a plucking machine, make sure you spray water on the chicken until the chicken is completely cleaned. This will only take about 30 seconds with a plucking machine.

7. The next step is to clean off any pin feathers (developing feathers) still attached. The pin feathers can also be removed by passing the carcass over a flame, if available. Then remove heads and necks (you can save the necks if you want them) then insert the chicken into the first chilling tank. A chilled bird can be easier to eviscerate (gut). This can also depend on the time of year you choose to harvest your birds. We highly recommend pre-chilling in warmer weather.

8. After the chicken carcasses have chilled for 30-45 minutes start the eviscerating process. Make the first incision above the vent and just below the breast bone. This will open up the body cavity. Gently trim around the vent without puncturing it (this is very important for sanitation). Next, take a sharp knife and carefully cut the tissue attaching the internal organs to the inside of the bird's body cavity wall. Firmly but carefully pull the organs out. Once you have removed the intestines, liver, gizzard, and heart separate the giblets if you desire (heart, liver, gizzard), wash, and store in a cooler with ice. After completely removing all of the entrails, wash the birds thoroughly with clean, cold water. Then put them into a clean chilling tank. This water must be cold enough to make your hand hurt when you dip it in and be able to cool the poultry to 40°F as soon as possible (USDA, 2013). Chilling can take a number of hours depending on the temperature outside the chilling tank and the size of the bird.

9. After chilling the chicken carcasses, they are ready for either vacuum sealing or shrink wrapping. Before you begin, let the chickens drip dry (see illustration of drying rack). Shrink-wrapping is a little faster and looks much more professional. You will need a turkey fryer pot with clean water heated to 185 – 190°F (use extreme caution while completing this process). Once you have sealed the carcasses, get them into the freezer

Electric Chicken Plucker



Photo source: Home Depot®

Vacuum Sealer



Photo source: YouTube®

immediately because they spoil easily. During processing, poultry is only allowed to increase to a temperature of 55°F (USDA, 2013). Try to place the carcasses in the freezer so that they don't touch until they are completely frozen. This process may take several hours.

While following these steps, always keep in mind sanitation. There is no room for error when processing chickens. Sanitation is always the first consideration when processing poultry. After each step, clean surfaces with warm soapy water, apply a light spray of bleach water and dry the surface with a clean paper towel. You can also apply clean plastic film on your work surfaces, then simply change it after each small group of birds is processed.

References:

S.F. Bilgili (2002) Slaughter quality as influenced by feed withdrawal, *World's Poultry Science Journal*, 58:2, 123-130, DOI: 10.1079/WPS20020012
TN Department of <https://www.tn.gov/agriculture/consumers/food-safety/ag-businesses-eggs-and-poultry/poultry-processing.html>

USDA. 2013. Food Safety and Inspection Service. Code of Federal Regulations 381.66 <https://www.govinfo.gov/content/pkg/CFR-2013-title9-vol2/pdf/CFR-2013-title9-vol2-sec381-66.pdf>

USDA Poultry Processing Question and Answers: <https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/poultry/poultry-processing-questions-answers>

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