On-Farm Processing Poultry: Tips for Safe Poultry Handling

Due to the popularity of farmers markets and the trend toward local niche meat production, more producers are processing poultry on farm than ever before. According to the Federal Poultry Products Inspection Act and the NC Poultry Products Inspection Law, NC producers are permitted to conduct on-farm processing of poultry of their own raising up to 1,000 poultry/year or greater than 1,000 but no more than 20,000 poultry/year if sold within state lines without mandatory daily inspection, if they meet the respective criteria for the exemption categories simply stated in NCDA&CS, MPID Notices 5-14 and 6-14. For more information about on-farm poultry processing regulations, contact the NCDA&CS Meat and Poultry Inspection Division at (919) 707-3180

May-August is peak farmers' market season in NC and that also means peak heat season. During these hottest months, it is especially critical that producers processing poultry on farm employ best management practices to reduce the likelihood of passing dangerous pathogens and food borne illnesses from poultry to consumer. For a more in-depth guide to best practices, review Cornell University's *On Farm Poultry Slaughter Guidelines: Food Safety and Best Management Practices for Farmers Processing Less Than 1,000 Birds/Year* and Oregon State University's *Best Practices Guide to Open-Air Poultry Slaughter*.

Best Management Practices for Ensuring Food Safety for On-Farm Poultry Processing

Pre-Harvest Interventions: *Healthy Animals, Low-Stress Handling*

- **Feed & Water-** A few days prior to harvest date, start adding 1 Tbsp. of vinegar per gallon of drinking water for birds. This improves hydration, reduces stress at feed withdrawal, and reduces the pathogens in feces. If you use a medicated feed, make sure to read the label and wait the correct amount of time before slaughter. Withdraw feed no less than 18 hours prior to slaughter to allow the digestive tract to empty. Increase the amount of water available to the birds during feed withdrawal.
- **Catching-** Confine birds near the location of slaughter to reduce stress from chasing and fatigue for poultry handlers. Catch birds at night or before dawn, when they are less active. Do not overcrowd birds during confinement, as they can quickly overheat. Spray birds with cool water and provide fans for evaporative cooling on hot days or when processing is delayed.
- **Sick Birds vs. Healthy Birds-** If unhealthy or seriously injured birds will be slaughtered first to reduce suffering, sanitize all contact surfaces prior to continuing slaughter of the rest of the flock. Consider slaughtering unhealthy birds at the end of the processing event to reduce the likelihood of introducing pathogens into the rest of the harvested product. Obviously unhealthy birds should not be marketed after slaughter.

Pre-Operational Steps: *Clean Environment, Personal Protection and Potable Water*

- **Proper Site Management and Hygiene-** Processing personnel and work environment should be clean. Create a clean space for processing and equipment storage that keeps rodents out, and ensure that you have trash receptacles with covered lids, sealed and cleanable surfaces, a well drained site, and sanitized, rust-free and properly working equipment. Use powerful, portable fans to reduce flies on work surfaces. Personnel should WASH HANDS regularly with hot water between 110-112°F. Proper

hand washing is KEY to good hygiene. Wash hands when moving in between tasks even if wearing gloves. Additional proper hygiene includes use of hair restraints, aprons, hand dips, and step in shoe dips with sanitizing solutions. Disposable gloves should be worn if hand injuries are present or nail polish and/or jewelry are not otherwise removed. When using a sanitizer, follow label instructions to ensure antimicrobial effectiveness.

- **Potable Water-** Make sure you have access to enough potable water sourced from a municipal source or a private well that is regularly tested. An estimated 1 to 2 gallons of water per bird is required just for processing, not including the additional water needed for chilling, cleaning, sanitizing, and personal hygiene. An average of 5 gallons of water per bird is recommended for total processing. Food grade hoses/pipe must be used for water to be considered potable. Generic garden hoses are not approved to supply potable water sources. Use backflow devices to prevent source contamination. Potable water hoses are usually available where camping or RV supplies are sold.

Operational Steps: *Cross-Contamination, Separate Slaughter & Pack, Monitor Time &Temperature*

- **Monitor Water Temperature-** Test water temperature using an accurate device, such as a digital thermometer. Avoid the infrared thermometers as they may have a wide temperature variance. Temperature in the pre-chill tank should be 33-40° F. Change chill water regularly and anytime you suspect contamination of the chill tank may have occurred.
- **Implement "Zero Tolerance" Practices-** After thorough washing, trim any remaining fecal material, feed and foreign matter from the carcass, rinse again and re-inspect prior to placing in the chill tank. USDA recommends a sanitizing step at this point prior to placement in the chill tank.
- **Separate Work Zones, Protective Clothing and Personnel-** Designate "dirty" areas for slaughter and "clean" areas for the processing steps after the final rinse but before the anti-microbial step. Cooling, cut-up and packaging should be performed in "clean" area.
- **Add Ice-** An average of 5lbs of ice per bird is recommended and more may be necessary depending on ambient temperatures. Monitor water temperature regularly with a calibrated thermometer. Keep a chest freezer dedicated to storing plenty of hard frozen ice. The size of the bird will influence chill time. USDA requires a 4 lb. bird to be chilled to an internal temperature of 40 degrees or less within 4 hours, a 4-8 lb. bird within 6 hours, and 8 lb. bird or more within 8 hours, calculated from the start of slaughter.
  A crowded home refrigerator is not a sufficient method to chill birds to below 41 degrees. A blast cooler or ice bath is required. Read about other USDA chilling recommendations
- **Anti-Microbial Spray or Dip-** On-farm processors should use anti-microbial sprays or dips prior to placing birds in the chill tank. Dips may be easier, faster and more effective for on-farm processing but risk acquiring too heavy pathogen load or excessive poultry remnants if not changed often. Most on-farm processors will either use a dilute chlorine (bleach) solution at 50ppm or an organic acid such as lactic or acetic acid at a 2-2.5% concentration. Test strips to check chlorine concentration are inexpensive. Various testing kits are available to check acid concentrations. *Chixcide* (brand) is an effective preparation of citric & lactic acids. Distilled white vinegar can be used (acetic acid) and is usually labeled with a known concentration (5%). Contact times with both chlorine and acetic acid are longer than with *Chixcide* or lactic acid, 5 minutes versus 30 seconds. Be aware that a 2% acid solution will bleach skin and turn any exposed meat white as it denatures protein. Exposure to an acid solution for longer than instructed times could result in a carcass or meat quality issue. To apply solution as a spray: spray both the exterior and interior of the carcass and allow it to sit on a sanitized surface for the appropriate length of time before placing in the chill tank. An average of 1 gallon of spray is usually sufficient for 50-60 carcasses. For a dip, prepare a solution of the recommended concentration in a food-grade container sufficient to immerse a carcass (usually 2 gallons). Remove from the dip, drain off residual solution, and place in the chill tank. Anti-microbials should not be added directly to chill tank as product may be absorbed by carcass over long dwell times.
- **Sanitize-** Regularly sanitize surfaces, knives and other tools during operation. Avoid standing water! If fecal or ingesta matter is found, trim it off completely, thoroughly rinse carcass, and rinse and sanitize the affected surface and equipment again. Use not more than 200ppm chlorine solution for equipment and tool sanitation. Use spray devices to apply sanitizing solution to work areas, tools and equipment.

Post Operational Steps: ***Waste Handling, Sanitizing, Proper Handling and Sell Through***

- **Discard Waste, Sanitize, and Disassemble-** Rinse all areas with warm water and soap as directed, starting at the top and working water away from you and down. Repeat until thoroughly cleaned. Follow with a sanitizer. Most 200ppm sanitizers can be allowed to dry on contact surfaces without a following rinse. Food-grade oils, such as mineral oil, should be applied as a lubricant to cleaned equipment to help avoid corrosion. Pick up compostable matter and move to an active compost. Non-compost trash should be promptly removed from site. Waste water can be applied to fields if it is at least 200 ft. from surface water or wells. NC Division of Waste Management monitors and provides assistance for appropriate levels of compost and waste disposal on farm. Large quantities of solid or liquid waste may require a permit and a plan of action. Contact the NC Division of Waste Management at 919-707-8200 for assistance.
- **Maintaining Proper Temperatures in Storage, Transport and Handling-** Poultry products must be handled and stored under safe conditions. Have a calibrated thermometer in your cooler to monitor temperature. NCDA&CS requires that poultry product be stored and transported properly to prevent product adulteration due to "temperature abuse". This means that when selling at Farmers Markets, coolers should have maintained temperatures of between 33-40° F in order to maintain a product temperature of 40 degrees or below. ADD ICE to ensure temperatures stay within safe conditions. Ideally, ice should be placed above product, as cold air moves downward.
- **Two Days Fresh and at the Market-** Fresh poultry should be cooked or frozen within two days of processing assuming proper temperatures have been maintained during that period. At the point-of-sale, ensure raw and exempt processed poultry is kept separated from inspected meat and poultry products. Provide new, clean bags for customers to carry home raw poultry. Discourage the use of cloth and reusable shopping bags for raw poultry. Do not allow customers to carry raw poultry and produce in the same bag. Provide hand sanitizer for staff and customers for use when handling raw poultry. Regularly sanitize shared surfaces on market tables to avoid cross-contamination. Do not share scales with poultry and produce.

NC Choices is a program of the Center for Environmental Farming Systems' (CEFS) that advances local and niche meat supply chains in North Carolina by providing networking opportunities, educational programming and technical assistance for producers, meat processors, buyers and food professionals.
CEFS is a partnership of NC State University, NC A&T State University and the NC Department of Agriculture and Consumer Services.

www.ncchoices.com

www.carolinameatconference.com

** Producers who process poultry under on-farm exemptions may be subject to greater liability than those who process under USDA inspection. These individuals should consider contacting a qualified insurance provider that specializes in food products. Exempt poultry processors should contact the NC Department of Agriculture and Consumer Services Meat and Poultry Inspection Division to register as an exempt processor. This document is not intended to provide individual legal advice to small-scale poultry processors. The regulations and contacts referenced in this document may change over time.*