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August 11, 2023

Paul Kiecker, Administrator
Food Safety and Inspection Service
U.S. Department of Agriculture
1400 Independence Ave. SW
Washington, DC 20250

Submitted via regulations.gov

Re: Comments Regarding *Salmonella* in Not-Ready-to-Eat Breaded Stuffed Chicken Products (Docket No. FSIS-2022-0013)

Dear Administrator Kiecker:

The Animal Welfare Institute ("AWI") submits this comment regarding the U.S. Department of Agriculture's ("USDA") Food Safety and Inspection Service's ("FSIS") Proposed Determination for *Salmonella* in Not-Ready-To-Eat Breaded Stuffed Chicken Products ("Proposal").[1] We appreciate FSIS's efforts to reduce the presence of *Salmonella* in poultry products to improve public health, as demonstrated by both the Proposal and the agency's broader Proposed Framework for Controlling *Salmonella* in Poultry ("Framework"),[2] issued late last year. These are important efforts, given that the Centers for Disease Control and Prevention estimate that "*Salmonella* bacteria cause about 1.35 million [human] infections, 26,500 hospitalizations, and 420 deaths in the United States every year,"[3] and that, according to FSIS, "over 23% of foodborne *Salmonella* illnesses are attributable to poultry consumption."[4]

[1] Salmonella in Not-Ready-To-Eat Breaded Stuffed Chicken Products 88 Fed. Reg. 26249 (Apr. 28, 2023) [hereinafter Proposal].
[2] USDA, FSIS, *Proposed Regulatory Framework to Reduce Salmonella Illnesses Attributable to Poultry*, https://www.fsis.usda.gov/inspection/inspection-programs/inspection-poultry-products/reducing-salmonella-poultry/proposed (Oct. 14, 2022).
[3] Centers for Disease Control and Prevention, *Salmonella*, https://www.cdc.gov/salmonella/index.html (July 25, 2023).
[4] *Id.*

Reducing *Salmonella* outbreaks from not-ready-to-eat ("NRTE") breaded stuffed chicken products is particularly necessary because these products cause a disproportionate number of illnesses. As the Proposal explains, "NRTE breaded stuffed chicken products account for less than 0.15 percent of the total domestic chicken supply . . . [but] outbreaks linked to these products represented approximately five percent of all chicken-associated outbreaks in the United States [from 1998–2020]."[5] As FSIS acknowledges, there have been several previous attempts to address *Salmonella* outbreaks caused by NRTE breaded stuffed chicken, all of which have proved insufficient.[6] The Proposal explains that "[a]lthough the labeling of NRTE breaded stuffed chicken products has undergone significant changes over time to better inform consumers that the products are raw and to provide instructions on how to prepare them safely, these products continue to be associated with *Salmonella* illness outbreaks."[7] As a result, the products "present a serious public health risk, regardless of the information provided on the label."[8] Thus, FSIS's proposed sampling and verification program, in tandem with enforcement actions for noncompliance if test results indicate *Salmonella* levels exceed 1 CFU per gram,[9] are vital for furthering public health goals.[10]

However, neither the Framework nor the Proposal consider an important factor that contributes to the prevalence of *Salmonella* in many raw poultry products: the harsh conditions and treatment that birds raised for human consumption experience when they are caught, transported, and processed for slaughter. As AWI explained in its comments on the Framework,[11] the stressful conditions to which poultry are often subjected, and the injurious ways in which they are often handled, can cause or exacerbate *Salmonella* infections in individual birds and lead to increased contamination of flocks, processing equipment, and carcasses. This increases the likelihood that *Salmonella* will be present in raw poultry products, putting consumers at greater risk. Therefore, FSIS could reduce instances of *Salmonella* in NRTE breaded stuffed chicken products—and other raw poultry products—by implementing measures to improve the conditions of live poultry. We urge FSIS to consider the correlation between the severe treatment and conditions that poultry often endure and the heightened levels of *Salmonella* infection and contamination that can result, and how enhanced regulation of the ways in which poultry are kept, handled, and processed in slaughter plants could reduce *Salmonella* illness in humans. Accordingly, in addition to the provisions contained in the Proposal and Framework, we

[5] Proposal, *supra* note 1, at 26252.
[6] *Id.*
[7] *Id.* at 26259.
[8] *Id.* at 26258.
[9] Proposal, *supra* note 1, at 26266.
[10] While we support FSIS's Proposal and believe it has the legal authority to declare *Salmonella* an adulterant, we encourage the agency to review Section III of AWI's comments on the Framework, which discusses the nuanced approach that some courts have taken in reviewing FSIS's authority in this context. *See* Animal Welfare Institute & Farm Sanctuary Public Comment, *Proposed Framework for Controlling Salmonella in Poultry* § III, 25-27, https://www.regulations.gov/comment/FSIS-2022-0029-1021 (Dec. 16, 2022) (commenting on FSIS's proposed framework for controlling salmonella in poultry) [hereinafter AWI & FS Framework Comment] (Exhibit 1).
[11] *Id.*

recommend that FSIS consider implementing at least the following four specific requirements (discussed in more detail in our comments on the Framework, attached as Exhibit 1) to both improve poultry welfare and further address the public health issues caused by *Salmonella*-contaminated products.

First, FSIS should require that the time poultry spend awaiting slaughter after arrival at the slaughter facility is no greater than four hours.[12] Ample research indicates that incidence of *Salmonella* in broilers increases during transport and that longer times in transport cages (both in transit and while waiting in lairage) correlate with higher risk of *Salmonella* infection. For example, prolonged wait times at the slaughter plant could increase the risk that any bruises chickens sustained during catching, loading, and transport will become increasingly contaminated with bacteria, including *Salmonella*.[13] Such bruises may then cross-contaminate processing equipment if overlying skin is pierced or torn during or after the slaughter process, or may enter the human food supply if not trimmed. Another study indicated that live poultry waiting in crates at the plant for four or more hours increased the proportion of *Salmonella*-positive carcasses, as determined by cultures of carcass rinse samples.[14] Thus, it is vital to limit wait times experienced by poultry during transit and at slaughter facilities.

Second, FSIS should require that poultry are protected from severe environmental conditions during holding.[15] It is well documented that harsh temperature and weather conditions can increase *Salmonella* levels in live birds.[16] Heat stress increases *Salmonella* risk by numerous mechanisms, including elevated corticosterone levels, increased attachment of *Salmonella* organisms to the lining of the gastrointestinal tract, increased gut permeability, and systemic invasion of *Salmonella* bacteria into internal organs and muscle tissue.[17] In addition, cold stress has been found to increase shedding of *Salmonella* in feces.[18] Therefore, it is critical to keep birds sheltered from extreme temperatures and conditions.

Third, FSIS should require that poultry be moved and handled, and equipment be maintained and operated, in a manner that minimizes stress, bruising, and other injuries.[19] Handling techniques

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[12] *Id.* at 16–19.
[13] *Id.* at 18.
[14] Julie Arsenault et al., *Prevalence and risk factors for Salmonella and Campylobacter spp. Carcass contamination in broiler chickens slaughtered in Quebec, Canada*, 70 J. OF FOOD PROT. 1820–1828 https://doi.org/10.4315/0362-028x-70.8.1820 (Aug. 1, 2007).
[15] AWI & FS Framework Comment, *supra* note 10, at 19–21.
[16] John W. Linville et al., *Using a Six Sigma Fishbone Analysis Approach to Evaluate the Effect of Extreme Weather Events on Salmonella Positives in Young Chicken Slaughter Establishment*s, 79 J. OF FOOD PROT. 2048–2057 https://doi.org/10.4315/0362-028X.JFP-16-173 (Dec. 2016).
[17] AWI & FS Framework Comment, *supra* note 10, at 9.
[18] A. S. Soerjadi et al., *Effect of environmental temperature on susceptibility of young chickens to Salmonella typhimurium*, 55 AUSTL.VETERINARY J. 413–417 https://doi.org/10.1111/j.1751-0813.1979.tb05591.x (Sept. 1979); Richard K. Gast & Robert E. Porter Jr., *Salmonella Infections*, 14 DISEASES OF POULTRY 717–753 https://doi.org/10.1002/9781119371199.ch16 (Nov. 22, 2019).
[19] AWI & FS Framework Comment, *supra* note 10, at 21–23.

that cause excitement, discomfort, pain, fear, and anxiety can lead to increased stress levels, which reduces immunity against pathogens such as *Salmonella*.[20] For example, certain manual catching methods (e.g., catching and carrying birds in an inverted position by one or both legs), are more likely to result in elevations in corticosterone concentrations and injuries such as wing fractures than other methods (e.g., catching and carrying in an upright position).[21] FSIS must require a systematic approach to ensuring that slaughter plant personnel and machinery handle birds in ways that avoid stress and injury.

Finally, FSIS should require that stun baths be designed and function in a way that prevents pre-stun shocks.[22] Pre-stun shocks caused by stun baths increase the risk of poultry becoming stressed and physically reacting in ways that could result in *Salmonella* cross-contamination. For example, improper stunning can result in "involuntary voidance of feces"[23] and "[w]ing flapping and movement."[24] By requiring that stun baths be designed and function so as to entirely prevent pre-stun shocks, FSIS could reduce incidents of birds struggling on the shackle line, flapping their wings, and defecating—all of which would help to reduce *Salmonella* contamination and better protect poultry consumers.

In sum, we support FSIS's proposal to declare *Salmonella* at levels of 1 CFU per gram or higher as an adulterant in NRTE breaded stuffed chicken products, as well as its Framework to reduce *Salmonella* presence in poultry more broadly. However, we also urge FSIS to implement the four specific requirements described above. Improving treatment and environmental conditions for poultry will reduce their stress and injuries, and in turn help decrease *Salmonella* infection and contamination. These changes will both improve bird welfare and advance FSIS's goal of improving public health.

Thank you for considering our comments.

Sincerely,

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[20] Colin G. Scanes, *Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio*, 95 POULTRY SCI. 2208–2215 https://doi.org/10.3382/ps/pew137 (Sept. 2016).
[21] Kathë Elise Kittelsen et al., *An Evaluation of Two Different Broiler Catching Methods*, 8 ANIMALS 141 https://doi.org/10.3390/ani8080141 (Aug. 15, 2018); G. Kannan & J. A. Mench, *Influence of different handling methods and crating periods on plasma corticosterone concentrations in broilers* 37 BRIT. POULTRY SCI. 21–31 https://doi.org/10.1080/00071669608417833 (Nov. 12, 2007).
[22] AWI & FS Framework Comment, *supra* note 10, at 24–25.
[23] FSIS, A Generic HACCP Model for Poultry Slaughter 1, 7–8 https://www.fsis.usda.gov/sites/default/files/media_file/2021-03/HACCP-Model-for-Poultry-Slaughter.pdf (Nov. 2020); FSIS Meat and Poultry Hazards Controls Guide 1, 25 https://www.fsis.usda.gov/guidelines/2018-0005 (Mar. 2018).
[24] FSIS Meat and Poultry Hazards Controls Guide at 27.

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Exhibit 1

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December 16, 2022

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Submitted via regulations.gov

Re: Comments Regarding Proposed Framework for Controlling *Salmonella* in Poultry (Docket No. FSIS-2022-0029)

Dear Administrator Kiecker:

The Animal Welfare Institute ("AWI") and Farm Sanctuary submit these comments regarding the U.S. Department of Agriculture's ("USDA") Food Safety and Inspection Service's ("FSIS") Proposed Framework for Controlling *Salmonella* in Poultry ("Framework").[1] We appreciate FSIS's efforts to reduce the presence of *Salmonella* in poultry products and *Salmonella* infections linked to those products, and we broadly support the three components of the Framework.[2] This is an important effort, given that "*Salmonella* bacteria cause about 1.35 million [human] infections, 26,500 hospitalizations, and 420 deaths in the United States every year,"[3] and "over 23% of foodborne *Salmonella* illnesses are attributable to poultry consumption."[4]

However, the Framework and the related research and activities that FSIS is conducting fail to consider an important factor that contributes to *Salmonella* illnesses in humans: the harsh conditions and treatment that poultry routinely experience when they are caught, transported, and

[1] USDA, FSIS, Proposed Regulatory Framework to Reduce Salmonella Illnesses Attributable to Poultry, https://www.fsis.usda.gov/inspection/inspection-programs/inspection-poultry-products/reducing-salmonella-poultry/proposed.
[2] Those components are: (1) requiring incoming flocks to be tested for *Salmonella* before entering an establishment; (2) enhancing establishment process control monitoring and FSIS verification; and (3) implementing an enforceable final product standard. *Id.*
[3] Centers for Disease Control and Prevention, *Salmonella*, https://www.cdc.gov/salmonella/index.html.
[4] USDA, FSIS, Proposed Regulatory Framework to Reduce Salmonella Illnesses Attributable to Poultry, https://www.fsis.usda.gov/inspection/inspection-programs/inspection-poultry-products/reducing-salmonella-poultry/proposed.

processed for slaughter. As discussed in more detail below, the stressful conditions to which poultry are often subjected, and the injurious ways in which they are often handled, can cause or exacerbate *Salmonella* infections in individual birds and lead to increased contamination of flocks, processing equipment, and carcasses. This increases the likelihood that *Salmonella* will be present in raw poultry products, putting consumers at greater risk. The Framework states that one of its goals is to incentivize "preharvest interventions"[5] and "upstream practices"[6] to reduce *Salmonella* contamination. However, it does not acknowledge that such interventions and practices should include measures to improve poultry treatment (such as by reducing stress, bruising, and other injuries) and environmental conditions (such as by protecting birds from extreme temperatures and weather).

Accordingly, we urge FSIS to consider—either as a fourth component to its Framework or as an overarching theme integrated within the three existing components—the correlation between the severe treatment and conditions that poultry often endure and the heightened levels of *Salmonella* infection and contamination that can result, and how enhanced regulation of the ways in which poultry are kept, handled, and processed in slaughter plants could reduce *Salmonella* illness in humans.

As part of this broader consideration, based on the studies and evidence discussed below, we recommend that FSIS consider proposing at least four specific requirements. First, the time between when poultry arrive at the slaughter plant and when they are slaughtered must be minimized, and may in no case exceed four hours. Second, upon arrival at the slaughter plant, poultry must be kept in an area where they are protected from temperature extremes, direct sunlight, and adverse weather. Third, between the time poultry arrive at the slaughter plant and the time they are slaughtered, they may not be handled in such a way that would cause bruising, bone fractures, dislocations, or other physical injuries. And fourth, in facilities where electrical water-bath stunning is used, stun baths must be designed and function in a way that prevents pre-stun shocks. Implementing these measures would reduce both the prevalence and severity of *Salmonella* infections in poultry and the contamination of raw poultry products.

In Section I below, we explain how *Salmonella* can infect and contaminate poultry and poultry products, and why harmful treatment and environmental conditions experienced by live birds can cause and exacerbate *Salmonella* transmission. In Section II, we explain why the studies and evidence discussed in Section I warrant our four recommendations. Finally, in Section III, we discuss some legal considerations regarding FSIS's proposal to declare *Salmonella* an adulterant.

I. Scientific Background Regarding *Salmonella* Infection and Contamination of Poultry

Salmonella is commonly found in live poultry, and numerous factors impact the risk of contamination of poultry products for human consumption. Poultry products can become

[5] Framework at 6.
[6] *Id.* at 10.

contaminated with *Salmonella* through contact with feces or other gastrointestinal contents, contact with *Salmonella*-contaminated equipment, or through hematogenous (i.e., carried by the blood) spread of *Salmonella* from the chicken's gastrointestinal tract ("GIT") to other tissues prior to slaughter.[7,8]

In order to effectively mitigate the risk of *Salmonella* contamination of human food products, it is essential to understand how the GIT and immune system of chickens and other poultry normally avoid infection with *Salmonella*, keep its levels in check if the GIT becomes colonized, and prevent its dissemination throughout the host's tissues. Understanding these defense mechanisms facilitates an appreciation for how, during the preslaughter period, harsh handling and environmental conditions can cause stress and damage to the bird's GIT and immune system. This damage can, in turn, increase risk of contamination of human food products by: (1) elevating *Salmonella* levels within the GIT of individual birds; (2) enabling systemic invasion of the pathogen into the organs and muscle tissues of live birds; and (3) increasing shedding of *Salmonella* into the environment.

A. Normal physiologic mechanisms of controlling *Salmonella* levels in the GIT and preventing systemic invasion

The lumen of the intestinal tract of poultry contains a diverse community of microorganisms, some of which execute functions which are beneficial and necessary for the host and some of which may be pathogenic. To maintain homeostasis, the animal's immune system must keep the microbial load in check, prevent potential pathogens such as *Salmonella* from binding to and colonizing the intestinal epithelium, and prevent or react to breaching of the intestinal barrier and the subsequent systemic dissemination of microbes into the bloodstream and to other organs and tissues.[9,10,11]

As depicted in Figure 1, the structure of the GIT creates a physical and immunological barrier preventing movement of potentially pathogenic bacteria, like *Salmonella*, into the animal's tissues.[12] In poultry, the intestinal barrier consists of four layers: (1) the beneficial microbiota mentioned above that live in the upper mucus layer within the gut lumen and compete with

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[7] Marmion, M., Ferone, M. T., Whyte, P., & Scannell, A. G. M. (2021). The changing microbiome of poultry meat; from farm to fridge. Food microbiology, 99, 103823. https://doi.org/10.1016/j.fm.2021.103823

[8] Rostagno, M. H. (2009). Can Stress in Farm Animals Increase Food Safety Risk? Foodborne Pathogens and Disease, 6, 7. https://doi.org/10.1089/fpd.2009.0315

[9] Kogut, M. H., Lee, A., & Santin, E. (2020). Microbiome and pathogen interaction with the immune system. *Poultry science*, *99*(4), 1906–1913. https://doi.org/10.1016/j.psj.2019.12.011

[10] Kogut, M.H. (2022). Chapter 24 - Immunophysiology of the avian immune system. In C.G. Scanes & S. Dridi (Eds.), Sturkie's Avian Physiology (7th ed., 591-610). Academic Press. 10.1016/B978-0-12-819770-7.00020-7

[11] Quinteiro-Filho, W. M., Gomes, A. V., Pinheiro, M. L., Ribeiro, A., Ferraz-de-Paula, V., Astolfi-Ferreira, C. S., Ferreira, A. J., & Palermo-Neto, J. (2012). Heat stress impairs performance and induces intestinal inflammation in broiler chickens infected with Salmonella Enteritidis. *Avian pathology: journal of the W.V.P.A*, *41*(5), 421–427. https://doi.org/10.1080/03079457.2012.709315

[12] Proszkowiec-Weglarz, M. (2022). Chapter 21 - Gastrointestinal anatomy and physiology. In C.G. Scanes & S. Dridi (Eds.), Sturkie's Avian Physiology (7th ed., 485-527). Academic Press. https://doi.org/10.1016/B978-0-12-819770-7.00010-4

potential pathogens for epithelial binding sites and nutrients; (2) a mucus layer overlying the epithelial cells; (3) a single layer of epithelial cells, connected via tight junctions (which form the intercellular barriers between epithelial cells); and (4) a wide range of immune cells residing in the lamina propria, a thin layer of connective tissue beneath the epithelial cells.[13,14,15,16]

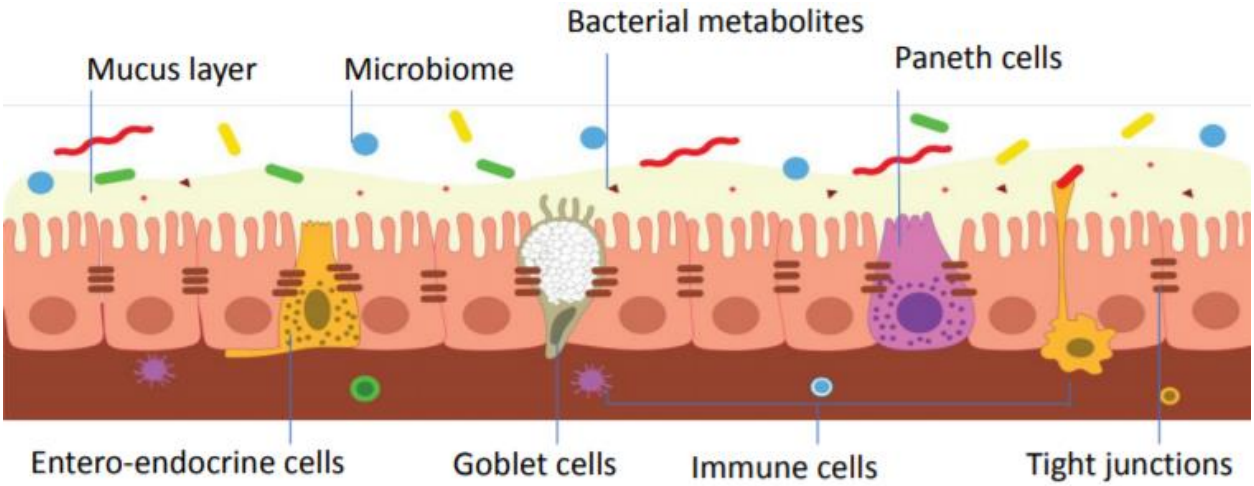

Figure 1. Diagram of the intestinal barrier of the chicken illustrating the beneficial microbiota, mucus layer, various types of epithelial cells, and immune cells in the lamina propria.[17]

In terms of *Salmonella* control, the immune system of poultry is important both because it forms part of the intestinal barrier and because of its role in controlling hematogenous spread of *Salmonella* to tissues outside the GIT, such as the spleen, liver, muscles, bone marrow, and even synovial (joint) fluid.[18,19] Similar to mammals, the avian immune system mounts two types of immune responses: the innate immune response and the adaptive immune response.[20] The innate response is nonspecific, attracting other immune cells to sites where they are needed and

[13] Kogut, M.H. (2022). Chapter 24 - Immunophysiology of the avian immune system. In C.G. Scanes & S. Dridi (Eds.), Sturkie's Avian Physiology (7th ed., 591-610). Academic Press. https://doi.org/10.1016/B978-0-12-819770-7.00020-7

[14] Marmion, M., Ferone, M. T., Whyte, P., & Scannell, A. G. M. (2021). The changing microbiome of poultry meat; from farm to fridge. *Food microbiology*, 99, 103823. https://doi.org/10.1016/j.fm.2021.103823

[15] Proszkowiec-Weglarz, M. (2022). Chapter 21 - Gastrointestinal anatomy and physiology. In C.G. Scanes & S. Dridi (Eds.), Sturkie's Avian Physiology (7th ed., 485-527). Academic Press. https://doi.org/10.1016/B978-0-12-819770-7.00010-4

[16] Burkholder, K. M., Thompson, K. L., Einstein, M. E., Applegate, T. J., & Patterson, J. A. (2008). Influence of stressors on normal intestinal microbiota, intestinal morphology, and susceptibility to Salmonella enteritidis colonization in broilers. *Poultry science*, *87*(9), 1734–1741. https://doi.org/10.3382/ps.2008-00107

[17] eFeedLink, *What poultry producers should know about endotoxins* (May 14, 2021), https://www.efeedlink.com/contents/05-14-2021/3426c06e-754a-4ee8-915a-3f92c6afd602-0111.html.

[18] Sexton, T.L. (2017). Salmonella contamination in poultry – are we missing a potential reservoir? Colorado State University. Libraries. Dissertation. https://hdl.handle.net/10217/185641

[19] Quinteiro-Filho, W. M., Calefi, A. S., Cruz, D. S. G., Aloia, T. P. A., Zager, A., Astolfi-Ferreira, C. S., Piantino Ferreira, J. A., Sharif, S., & Palermo-Neto, J. (2017). Heat stress decreases expression of the cytokines, avian β-defensins 4 and 6 and Toll-like receptor 2 in broiler chickens infected with Salmonella Enteritidis. *Veterinary immunology and immunopathology*, *186*, 19–28. https://doi.org/10.1016/j.vetimm.2017.02.006

[20] Kaiser, P. & Balic, A. (2015). Chapter 17 - The Avian Immune System. In C.G. Scanes (Ed.), *Sturkie's Avian Physiology (*6th ed, 403-418). Academic Press. https://doi.org/10.1016/B978-0-12-407160-5.00017-8

presenting antigens to the adaptive immune system. The adaptive immune response consists of cell-mediated and humoral immune responses and allows for immunological memory. Both the innate and adaptive immune responses are involved in regulating bacterial populations in the lumen of the gut and preventing invasion across the intestinal barrier.[21,22] The GIT contains more immune cells than anywhere else in the body.[23]

B. Impact of stress and HPA-axis activation on the integrity of the GIT barrier and immune function in poultry

"Stress" refers to physiological and behavioral responses elicited by aversive stimuli.[24] Stressors can be grouped into three general categories: (1) psychological stressors (e.g., exposure to a novel environment); (2) physical stressors with a strong psychological component (e.g., pain, immobilization); and (3) stressors that challenge cardiovascular homeostasis (e.g., hemorrhage, heat exposure).[25] Exposure to such stressors leads to activation of the hypothalamic-pituitary-adrenal ("HPA") axis, resulting in an increase in blood levels of corticosterone (sometimes referred to as "stress hormone"), the principal glucocorticoid secreted by avian adrenal glands.[26] Corticosterone affects the body in myriad ways. Most relevant here are its impact on: (1) the ability of the gut to serve as a barrier against *Salmonella* invasion; and (2) the functioning of the immune system, which affects both shedding and systemic invasion of *Salmonella*.

Research has shown that stressors alter the normal, protective microbiota of the GIT, increasing the risk of colonization with pathogens such as *Salmonella*.[27] In addition, corticosterone released in response to stress damages the epithelial barrier function and increases GIT permeability.[28,29,]

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[21] Kogut, M. H., Lee, A., & Santin, E. (2020). Microbiome and pathogen interaction with the immune system. *Poultry science*, *99*(4), 1906–1913. https://doi.org/10.1016/j.psj.2019.12.011

[22] Yang, J., Liu, L., Sheikhahmadi, A., Wang, Y., Li, C., Jiao, H., Lin, H., & Song, Z. (2015). Effects of corticosterone and dietary energy on immune function of broiler chickens. *PloS one*, *10*(3), e0119750. https://doi.org/10.1371/journal.pone.0119750

[23] Kogut, M. H., Lee, A., & Santin, E. (2020). Microbiome and pathogen interaction with the immune system. *Poultry science*, *99*(4), 1906–1913. https://doi.org/10.1016/j.psj.2019.12.011

[24] Yang, J., Liu, L., Sheikhahmadi, A., Wang, Y., Li, C., Jiao, H., Lin, H., & Song, Z. (2015). Effects of corticosterone and dietary energy on immune function of broiler chickens. *PloS one*, *10*(3), e0119750. https://doi.org/10.1371/journal.pone.0119750

[25] Rostagno M. H. (2009). Can stress in farm animals increase food safety risk?. *Foodborne pathogens and disease*, *6*(7), 767–776. https://doi.org/10.1089/fpd.2009.0315

[26] Scanes C. G. (2016). Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio. *Poultry science*, *95*(9), 2208–2215. https://doi.org/10.3382/ps/pew137

[27] Burkholder, K. M., Thompson, K. L., Einstein, M. E., Applegate, T. J., & Patterson, J. A. (2008). Influence of stressors on normal intestinal microbiota, intestinal morphology, and susceptibility to Salmonella enteritidis colonization in broilers. *Poultry science*, *87*(9), 1734–1741. https://doi.org/10.3382/ps.2008-00107

[28] Yang, J., Liu, L., Sheikhahmadi, A., Wang, Y., Li, C., Jiao, H., Lin, H., & Song, Z. (2015). Effects of corticosterone and dietary energy on immune function of broiler chickens. *PloS one*, *10*(3), e0119750. https://doi.org/10.1371/journal.pone.0119750

[29] Marmion, M., Ferone, M. T., Whyte, P., & Scannell, A. G. M. (2021). The changing microbiome of poultry meat; from farm to fridge. Food microbiology, 99, 103823. https://doi.org/10.1016/j.fm.2021.103823

[30,31] Thus, higher levels of stress and corticosterone increase the potential for both intestinal colonization and systemic invasion by *Salmonella*.[32,33,34] In addition, numerous studies have confirmed that stress increases frequency of defecation and shedding of *Salmonella* in feces.[35,36,37,38] Stress can also increase pecking behavior, which can further contribute to GIT colonization.[39]

Increases in corticosterone are also well known to dysregulate immune response and lead to immunosuppression.[40,41,42,43] Corticosterone released in response to stress impairs both the innate and adaptive immune responses.[44] It causes decreased intensity of phagocytosis by macrophages

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[30] Burkholder, K. M., Thompson, K. L., Einstein, M. E., Applegate, T. J., & Patterson, J. A. (2008). Influence of stressors on normal intestinal microbiota, intestinal morphology, and susceptibility to Salmonella enteritidis colonization in broilers. *Poultry science*, *87*(9), 1734–1741. https://doi.org/10.3382/ps.2008-00107

[31] Scanes C. G. (2016). Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio. *Poultry science*, *95*(9), 2208–2215. https://doi.org/10.3382/ps/pew137

[32] Marmion, M., Ferone, M. T., Whyte, P., & Scannell, A. G. M. (2021). The changing microbiome of poultry meat; from farm to fridge. Food microbiology, 99, 103823. https://doi.org/10.1016/j.fm.2021.103823

[33] Burkholder, K. M., Thompson, K. L., Einstein, M. E., Applegate, T. J., & Patterson, J. A. (2008). Influence of stressors on normal intestinal microbiota, intestinal morphology, and susceptibility to Salmonella enteritidis colonization in broilers. *Poultry science*, *87*(9), 1734–1741. https://doi.org/10.3382/ps.2008-00107

[34] Borsoi, A., Quinteiro-Filho, W. M., Calefi, A. S., Ferreira, A. J., Astolfi-Ferreira, C. S., Florio, J. C., & Palermo-Neto, J. (2015). Effects of cold stress and Salmonella Heidelberg infection on bacterial load and immunity of chickens. *Avian pathology : journal of the W.V.P.A*, *44*(6), 490–497. https://doi.org/10.1080/03079457.2015.1086976

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[36] EFSA Panel on Biological Hazards (EFSA BIOHAZ Panel), Koutsoumanis, K., Allende, A., Alvarez-Ordóñez, A., Bolton, D., Bover-Cid, S., Chemaly, M., De Cesare, A., Herman, L., Hilbert, F., Lindqvist, R., Nauta, M., Peixe, L., Ru, G., Simmons, M., Skandamis, P., Suffredini, E., Dewulf, J., Hald, T., Michel, V., … Davies, R. (2019). *Salmonella* control in poultry flocks and its public health impact. *EFSA journal. European Food Safety Authority*, *17*(2), e05596. https://doi.org/10.2903/j.efsa.2019.5596

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(ingestion of bacteria by immune cells),[45] marked regression of lymphoid tissues (and thus a decrease in size and weight of organs of the immune system, such as the spleen),[46,47] and decreased humoral (antibody) response.[48,49]

C. Additional mechanisms by which preslaughter stressors can increase *Salmonella* risk

Besides corticosterone-mediated decreases in gut integrity and immune function, there are additional mechanisms by which subjecting poultry to preslaughter stressors may increase risk of *Salmonella* contamination of poultry products.

i. Trauma, hemorrhage, and hypovolemic shock decrease gut perfusion and increase risk of bacterial translocation.

Physical trauma and injuries are common preslaughter stressors. Certain manual catching methods (e.g., catching and carrying birds in an inverted position by one or both legs), are more likely to result in elevations in corticosterone concentrations and injuries such as wing fractures than other methods (e.g., catching and carrying in an upright position).[50,51] Trauma can also occur during loading, transport, and unloading. In addition to activation of the HPA-axis, severe injuries such as fractures and dislocations can cause hemodynamic (blood flow) changes that may increase invasion of a bird's tissues by *Salmonella*.

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Hemorrhage associated with dislocated joints (especially coxofemoral (hip) luxation), ruptured livers, and broken bones can also constitute a major stressor.[52] Hemorrhage in birds can result in poor GIT perfusion and thus increase the risk of *Salmonella* translocation from inside the gut to the liver or other edible tissues. Though hemorrhage often leads to death of the bird prior to arriving at the slaughterhouse, some birds with such injuries survive and go on to be slaughtered. While identification of severe bruising typically leads to condemnation of the carcass,[53] hemorrhage can also occur due to trauma associated with limited bruising, in which case the carcass may merely be trimmed prior to entering the food supply.[54] In such instances, carcasses with tissues contaminated with *Salmonalla*—which can't be detected by visual inspection—could reach consumers.

In birds who survive injuries sustained during catching, loading, transport, unloading, and shackling, hemorrhage and severe pain may lead to hypovolemic shock.[55] While hypovolemic shock is not as well-researched in birds as in mammals, the pathophysiology of hypovolemic shock in avian species suggests that this condition is likely to increase hematogenous dissemination of *Salmonella* to tissues throughout the bodies of birds carrying *Salmonella* in their GIT.

Shock is defined as poor tissue perfusion (blood flow) resulting in inadequate delivery of oxygen to tissues. In birds, as in mammals, the gut is one of the first organs to be profoundly affected by poor perfusion due to shock.[56,57] Under experimental conditions, poor gut perfusion has been documented in chickens immediately after loss of 50 percent of blood volume.[58] Loss of blood flow to the GIT rapidly increases the gut's permeability, as tight junctions between epithelial cells loosen.[59] This loss of GIT integrity can rapidly lead to bacterial translocation across the gut barrier and dissemination into the animal's tissues.[60]

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Although research specific to *Salmonella* has not been performed, studies have shown that, within 30 minutes of gut hypoperfusion, bacterial translocation occurs in 35 percent of individuals, with the number increasing to 50 percent in 60 minutes.[61] Unlike most animals on which hypovolemic shock research is performed, poultry have often undergone significant periods of food deprivation (*see* section II.C.iii) prior to sustaining injuries that lead to shock, thus the integrity of their gut may already be damaged.[62] This suggests that the risk of *Salmonella* contamination in poultry tissues may be significantly increased in birds sustaining major injuries during the preslaughter period.

ii. *Heat stress causes increases in corticosterone levels,* Salmonella *attachment to the GIT, gut permeability, and systemic invasion of* Salmonella.

Heat stress in poultry, which may occur on the farm, during transport, or during holding at the slaughter plant, can increase the risk of *Salmonella* contamination of human food products by damaging GIT barrier function as well as immune function, leading to both increased *Salmonella* shedding and systemic invasion by *Salmonella* into edible bird tissues.[63] As with other stressors, heat stress results in HPA-axis activation and increases blood levels of corticosterone.[64,65,66,67]

There are additional mechanisms by which heat stress decreases the GIT barrier function and dysregulates the immune system.[68] The body responds to heat stress by diverting blood flow to

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the skin in an attempt to offload heat; the subsequent decrease in blood flow to the GIT can damage the tight junctions essential to maintaining the GIT barrier.[69] Heat stress has also been found to decrease trans-epithelial electrical resistance in the chicken jejunum (the central portion of the small intestine), increasing intestinal permeability.[70] Finally, heat stress affects the expression of genes that encode tight junctions.[71] Histological changes to the GIT of chickens can be detected after a period of heat stress.[72,73]

Heat stress also directly impacts intestinal immune activity. In research on chickens infected with *Salmonella typhimurium*, heat stress caused a decrease in function of both the innate and adaptive immune responses by decreasing production of key cytokines (protective proteins) and reducing macrophage activity.[74,75]

As a result of its impact on immune function and GIT barrier function, even relatively short bouts of heat stress increase *Salmonella* attachment to intestinal cells.[76,77,78] In addition, *Salmonella* counts in the spleen, crop, liver, cecum, and bone marrow are higher in *Salmonella*-infected chickens who are heat stressed compared to infected chickens who are not heat

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[76] Gast, & Porter, R. E. (2020). Salmonella Infections. In *Diseases of Poultry* (pp. 717–753). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119371199.ch16
[77] Burkholder, K. M., Thompson, K. L., Einstein, M. E., Applegate, T. J., & Patterson, J. A. (2008). Influence of stressors on normal intestinal microbiota, intestinal morphology, and susceptibility to Salmonella enteritidis colonization in broilers. *Poultry science*, *87*(9), 1734–1741. https://doi.org/10.3382/ps.2008-00107
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stressed.[79,80,81] Exposure to temperature extremes is also associated with increased fecal shedding of pathogens,[82] and there is some evidence that this holds true for *Salmonella* as well.[83] Increased fecal shedding increases the risk that surrounding birds will become infected or contaminated via soiling of their plumage and skin or ingestion of droppings containing greater numbers of *Salmonella* organisms.

iii. Prolonged feed withdrawal increases corticosterone levels, gut permeability, attachment of Salmonella*, and likelihood of intestinal rupture during processing.*

Currently, a common means of reducing *Salmonella* contamination of poultry carcasses is to remove feed during the preslaughter period, ensuring that the GIT will be as empty as possible during processing.[84] Feed is often removed 8-12 hours before birds are transported to slaughter in an effort to reduce fecal shedding during transportation and processing.[85] However, in addition to increasing corticosterone levels,[86,87] excessive periods of feed withdrawal can increase risk of *Salmonella* contamination of human food products by several mechanisms.

Hungry chickens often consume litter and droppings—which may be contaminated with *Salmonella*—that were either excreted by their flockmates or remained in trucks or transport

[79] Quinteiro-Filho, W. M., Gomes, A. V., Pinheiro, M. L., Ribeiro, A., Ferraz-de-Paula, V., Astolfi-Ferreira, C. S., Ferreira, A. J., & Palermo-Neto, J. (2012). Heat stress impairs performance and induces intestinal inflammation in broiler chickens infected with Salmonella Enteritidis. *Avian pathology : journal of the W.V.P.A*, *41*(5), 421–427. https://doi.org/10.1080/03079457.2012.709315

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[87] Scanes C. G. (2016). Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio. *Poultry science*, *95*(9), 2208–2215. https://doi.org/10.3382/ps/pew137

crates from previous transports.[88,89] Ingesta first enters the chicken's crop. Colonization of the crop with *Salmonella* present in ingested droppings is likely to occur because feed withdrawal decreases birds' natural resistance to crop colonization with *Salmonella*.[90,91] As one study explains, "[f]eed withdrawal produces physical, chemical, and microbiological changes in the crop of broilers, and these changes may reduce the natural resistance of the birds to crop colonization by Enterobacteriaceae," including *Salmonella*.[92]

In experimental trials, 30 to 57 percent of crops remained culture-positive for *Salmonella* two days after being inoculated via oral gavage with the bacteria,[93] which indicates that *Salmonella* organisms ingested during the preslaughter period typically remain viable during post-slaughter processing. Under commercial conditions, broilers were found to have a marked (up to fivefold) increase in *Salmonella*-positive crops even after only 7 to 8 hours of preslaughter feed withdrawal,[94] so prolonged periods of feed withdrawal are likely to worsen *Salmonella* contamination of crops. Moreover, when compared to the chicken's ceca, the crop is both significantly more likely to be colonized with *Salmonella* and 86 times more likely to be ruptured during processing.[95] Such rupture is likely to increase the risk of contamination of chicken carcasses with *Salmonella*.

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[89] Mainali, C., Gensler, G., McFall, M., King, R., Irwin, R., & Senthilselvan, A. (2009). Evaluation of associations between feed withdrawal and other management factors with Salmonella contamination of broiler chickens at slaughter in Alberta. *Journal of food protection*, *72*(10), 2202–2207. https://doi.org/10.4315/0362-028x-72.10.2202
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Intestinal permeability in chickens is increased within 4.5 hours of fasting.[96,97] Within 24 hours, feed withdrawal alters intestinal morphology and makes intestinal tissue of fasted birds more susceptible to attachment of *Salmonella*.[98,99] Access to feed affects the expression of genes that encode tight junctions, and both short- and long-term fasting can alter intestinal permeability.[100] All of these are mechanisms by which edible tissues of poultry may become contaminated by *Salmonella* via systemic dissemination of organisms within the gut.

In addition, prolonged periods of feed deprivation increase both fecal shedding of *Salmonella* and production of excrete at the time of electrical stunning.[101,102]As discussed above, increased fecal shedding during the preslaughter period increases the risk of *Salmonella* contaminating birds' plumage, skin, and crops. And increased production of excreta at the time of slaughter can increase contamination of equipment and water baths.[103] Finally, feed withdrawal times greater than 13 to 14 hours weaken the mucosal lining the GIT, increasing the risk of GIT perforation, content spillage and contamination of the processor environment.[104,105]

Excessive periods of food deprivation can thus increase *Salmonella* contamination of: (1) the preslaughter environment of live birds; (2) the edible tissues of birds whose GIT are colonized with *Salmonella*; and (3) the post-slaughter processing environment.

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[96] Gilani, S., Howarth, G. S., Nattrass, G., Kitessa, S. M., Barekatain, R., Forder, R. E. A., Tran, C. D., & Hughes, R. J. (2018). Gene expression and morphological changes in the intestinal mucosa associated with increased permeability induced by short-term fasting in chickens. *Journal of animal physiology and animal nutrition*, *102*(2), e653–e661. https://doi.org/10.1111/jpn.12808

[97] Gilani, S., Howarth, G. S., Tran, C. D., Barekatain, R., Kitessa, S. M., Forder, R. E. A., & Hughes, R. J. (2018). Reduced fasting periods increase intestinal permeability in chickens. *Journal of animal physiology and animal nutrition*, *102*(1), e486–e492. https://doi.org/10.1111/jpn.12712

[98] Burkholder, K. M., Thompson, K. L., Einstein, M. E., Applegate, T. J., & Patterson, J. A. (2008). Influence of stressors on normal intestinal microbiota, intestinal morphology, and susceptibility to Salmonella enteritidis colonization in broilers. *Poultry science*, *87*(9), 1734–1741. https://doi.org/10.3382/ps.2008-00107

[99] Gast, & Porter, R. E. (2020). Salmonella Infections. In *Diseases of Poultry* (pp. 717–753). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119371199.ch16

[100] Proszkowiec-Weglarz, M. (2022). Chapter 21 - Gastrointestinal anatomy and physiology. In C.G. Scanes & S. Dridi (Eds.), Sturkie's Avian Physiology (7th ed., 485-527). Academic Press. 10.1016/B978-0-12-819770-7.00010-4

[101] Gast, & Porter, R. E. (2020). Salmonella Infections. In *Diseases of Poultry* (pp. 717–753). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119371199.ch16

[102] Papa, C. M., & Dickens, J. A. (1989). Lower gut contents and defecatory responses of broiler chickens as affected by feed withdrawal and electrical treatment at slaughter. *Poultry science*, *68*(11), 1478–1484. https://doi.org/10.3382/ps.0681478

[103] *Id.*

[104] Marmion, M., Ferone, M. T., Whyte, P., & Scannell, A. G. M. (2021). The changing microbiome of poultry meat; from farm to fridge. Food microbiology, 99, 103823. https://doi.org/10.1016/j.fm.2021.103823

[105] Northcutt, J.K. (2012). Reference Guide for Solving Poultry Processing Problems. UGA Extension Bulletin 1156, https://secure.caes.uga.edu/extension/publications/files/pdf/B%201156_1.PDF.

iv. Bruised tissue is more likely to contain Salmonella *and other bacteria.*

A bruise is "a superficial injury resulting from an impact force where the skin is not pierced, but the cells and capillaries beneath the skin are ruptured in the damaged areas."[106] As mentioned briefly above, large bruises may lead to condemnation of the carcass; however, moderate-sized bruises (larger than a dime) are only trimmed.[107] Small bruises sustained during the preslaughter period may enter the food supply. Bruises may also rupture during processing, prior to being trimmed.

Studies suggest that, once ingested, *Salmonella* can migrate from the GIT to bruised muscle tissue. In one instance, scientists fed live cultures of *Salmonella enteritidis* to 105 chickens. The researchers then bruised 63 of the birds. During the first day of healing, 6 percent of bruised tissue was found to be culture-positive for *Salmonella enteritidis*, while *Salmonella* could not be cultured from any tissue samples derived from non-bruised birds.[108] This study indicated that both *Salmonella* and other organisms are able to contaminate the tissue of bruised birds, and that "the gut may serve as a portal of entry of bacteria to traumatized areas."[109]

Other studies have indicated that bruised tissue can generally promote the growth of bacteria like *Salmonella*.[110] The presence of numerous hydrolytic enzymes, extracellular fluid, and free hemoglobin in the bruised area is believed to increase the permeability of bruised tissue and stimulate the replication of low numbers of bacteria that arrive at the site.[111,112] In one experiment, researchers injected staphylococcal bacteria cultures (*S. aureus* or *S. epidermidis*) either into healthy tissue or into tissue which had been bruised one hour prior.[113] They observed that the number of viable bacterial cells in the bruised tissue increased for the first 1-5 days following injection, while the number of viable cells in the normal tissue decreased after the first day.[114] As the authors explained, the normal tissues did not support the growth of the bacteria, while "the bruised tissues supported and stimulated growth of this organism."[115]

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[106] Northcutt, J.K., Buhr, R.J., & Rowland, G.N. (2000). Relationship of Broiler Bruise Age to Appearance and Tissue Histological Characteristics. *J. Appl. Poultry Res. 9*, 13-20.
[107] Russell, S.M., *Poultry processing condemnations: A guide to identification and causes* (May 3, 2012), https://www.wattagnet.com/articles/12666-poultry-processing-condemnations-a-guide-to-identification-and-causes.; 9 CFR 381.89.
[108] Hamdy, M. K., Barton, N. D., & Brown, W. E. (1964). Source and portal of entry of bacteria found in bruised poultry tissue. *Applied microbiology*, *12*(6), 464–469. https://doi.org/10.1128/am.12.6.464-469.1964
[109] *Id.* at 469.
[110] Hamdy, M.K. & Carpenter, J.A. (1973). Bacterial Persistence in Animal Tissues. *Poultry Science, 53*(2). 577-585.
[111] Hamdy, M. K., Barton, N. D., & Brown, W. E. (1964). Source and portal of entry of bacteria found in bruised poultry tissue. *Applied microbiology*, *12*(6), 464–469. https://doi.org/10.1128/am.12.6.464-469.1964
[112] Brown, W.E. & Hamdy, M.K. (1964). Enzymatic Studies of Bruised Poultry Tissue. *Journal of Food Science*, *29*(4), 407–412. https://doi.org/10.1111/j.1365-2621.1964.tb01752.x
[113] Hamdy, M.K. & Carpenter, J.A. (1973). Bacterial Persistence in Animal Tissues. *Poultry Science, 53*(2). 577-585.
[114] *Id.*
[115] *Id.* at 581.

In another study, researchers injected the breast muscle of 87 chickens with *Staphylococcus aureus*. During the first two days following the injection, they observed a rapid decrease in the number of viable *S. aureus* cells in the breast muscle tissue. On the third day, they inflicted bruises on 54 of the 87 birds at the site of the injection. In the tissue of the 33 chickens that remained unbruised, the number of viable *S. aureus* cells continued to decrease until day 7, when they were no longer detectable. By contrast, in the tissue of the 54 chickens that were bruised, the number of viable bacterial cells sharply increased during the first day after infliction. The number subsequently decreased, but still remained higher than in the unbruised tissue by day 7.[116]

Yet another study revealed that up to 74 percent of the bruised poultry tissue examined harbored both aerobic and anaerobic bacteria and that "[t]hese organisms were found, in experimentally inflicted bruises, to increase in number at the early stages of healing (1-2 days), followed by a rapid decrease to the level of the controls within 4-6 days."[117]

Research also indicates that bacteria on the skin surface can permeate bruised tissue, even in the absence of a puncture or tear, with bacterial reaching their highest levels 6 to 24 hours after the bruise was inflicted.[118] This suggests that, even if an uninfected bird becomes bruised, the bruised tissue could become contaminated with *Salmonella* by coming into contact with other contaminated birds or surfaces.

The findings of these studies contradict the USDA's uncited claim that, "[u]nless there are punctures, cuts, or tears associated with the bruise, most bruising is sterile and would not contain pathogenic bacteria."[119] On the contrary, the above results demonstrate that pathogens, including *Salmonella*, can be present within intact bruises and can rapidly increase in the hours after the contusion occurs. This means that bruises sustained during catching, loading, transport, and unloading are more likely to contain *Salmonella* and other bacteria than healthy tissues or tissues bruised prior to the preslaughter period. Studies indicate that approximately 90 percent of bruising occurs within 12 to 24 hours before processing.[120]

As mentioned above, while large bruises are prevented from entering the food supply by condemnation or trimming, small bruises may remain, potentially increasing consumer risk of food-borne illness. Prior to trimming, processing equipment may potentially become

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[116] Hamdy, M. K., Barton, N. D., & Brown, W. E. (1964). Source and portal of entry of bacteria found in bruised poultry tissue. *Applied microbiology*, *12*(6), 464–469. https://doi.org/10.1128/am.12.6.464-469.1964

[117] McCarthy, P.A., Brown, W., & Hamdy, M.K. (1963). Microbiological Studies of Bruised Tissues. Journal of Food Science, 28(3), 245–253, 248. https://doi.org/10.1111/j.1365-2621.1963.tb00192.x

[118] *Id*.

[119] USDA, Have a Question? Ask USDA, Is it safe to eat poultry with bruise marks (July 17, 2019), https://ask.usda.gov/s/article/Is-it-safe-to-eat-poultry-with-bruise-marks#:~:text=Unless%20there%20are%20punctures%2C%20cuts,would%20not%20contain%20pathogenic%20bacteria.

[120] Fowler, J.C. & Mellor D.B. (1975). Reducing Broiler Bruising on the Farm, Texas Agricultural Extension Service; Hamdy, M. K., May, K.N., Flanagan, W.P. & Powers, J. J. (1961). Determination of the Age of Bruises in Chicken Broilers. University of Georgia, College of Agriculture Experiment Stations, Journal Paper Number 134.

contaminated by piercing or tearing bruised tissue, increasing the risk of cross-contamination of other carcasses.

II. Recommendations for Reducing the Risk of *Salmonella* Contamination of Human Food Products

As discussed above, there are numerous mechanisms by which preslaughter stressors and injuries can lead to or worsen the colonization, shedding, systemic invasion, and external contamination of poultry by *Salmonella*. To avoid subjecting birds to stress and serious injury, and to reduce the risk of *Salmonella*, we recommend that FSIS propose adding the following specific requirements to the Framework.

A. FSIS should require that the time poultry spend awaiting slaughter after arrival at the slaughter facility is no greater than four hours.

An important step that FSIS should take to reduce *Salmonella* infection and contamination is to adopt a requirement that poultry spend as little time as possible—and no more than four hours—waiting at plants to be slaughtered. Ample research shows that incidence of *Salmonella* in broilers increases during transport and connects longer times in transport cages (both in transit and waiting in the plant) with higher risk of *Salmonella*.[121,122,123,124] Adopting this recommendation would align with the National Advisory Committee on Microbiological Criteria for Foods's ("NACMCF") recommendation to "limit time in transport cages" to the extent possible.[125] It is also supported by research indicating that waiting in crates at the plant for four or more hours increases the proportion of *Salmonella*-positive broiler carcasses, as determined by cultures of carcass rinse samples.[126] By adopting this requirement, foodborne *Salmonella* risk would be decreased by four distinct mechanisms.

First, in a flock in which the GITs of some but not all chickens are colonized with *Salmonella*, this would help decrease transfer of *Salmonella* from infected chickens to non-infected chickens. Chickens are typically kept at high stocking densities in transport crates, increasing their contact

[121] Mainali, C., Gensler, G., McFall, M., King, R., Irwin, R., & Senthilselvan, A. (2009). Evaluation of associations between feed withdrawal and other management factors with Salmonella contamination of broiler chickens at slaughter in Alberta. *Journal of food protection*, *72*(10), 2202–2207. https://doi.org/10.4315/0362-028x-72.10.2202
[122] Marin, C., & Lainez, M. (2009). Salmonella detection in feces during broiler rearing and after live transport to the slaughterhouse. *Poultry science*, *88*(9), 1999–2005. https://doi.org/10.3382/ps.2009-00040
[123] Corry, J. E., Allen, V. M., Hudson, W. R., Breslin, M. F., & Davies, R. H. (2002). Sources of Salmonella on broiler carcasses during transportation and processing: modes of contamination and methods of control. *Journal of applied microbiology*, *92*(3), 424–432. https://doi.org/10.1046/j.1365-2672.2002.01543.x
[124] Rigby, C. E., & Pettit, J. R. (1980). Changes in the Salmonella status of broiler chickens subjected to simulated shipping conditions. *Canadian journal of comparative medicine: Revue canadienne de medecine comparee*, *44*(4), 374–381.
[125] NACMCF Salmonella-Poultry Response for Committee Review 35 (Oct. 31, 2022).
[126] Arsenault, J., Letellier, A., Quessy, S., & Boulianne, M. (2007). Prevalence and risk factors for Salmonella and Campylobacter spp. carcass contamination in broiler chickens slaughtered in Quebec, Canada. *Journal of food protection*, *70*(8), 1820–1828. https://doi.org/10.4315/0362-028x-70.8.1820

with feces, feather debris, aerosols, and dust harboring *Salmonella*, all of which are routes of infection and contamination of feathers and skin.[127,128,129,130,131] Research has found that bird plumage is significantly more soiled after transportation and waiting at the plant, than after catching.[132,133]

Second, being held in crates is known to be a stressful experience for poultry,[134] stress which is exacerbated by high stocking densities,[135,136,137,138] extreme temperatures (*see* section I.C.ii), and the presence of painful injuries sustained during catching, loading, and transport.[139] As discussed above (*see* section I.B), stress leads to immunosuppression and loss of integrity of the gut barrier, both of which contribute to hematogenous dissemination of bacteria from the GIT, including *Salmonella*, into the animal's edible tissues. Stress, high bird densities, and high temperatures in the transport crates may also increase defecation and subsequent fecal contamination of the birds.[140]

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[127] Gast & Porter, R. E. (2020). Salmonella Infections. In *Diseases of Poultry* (pp. 717–753). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119371199.ch16

[128] FSIS Guideline for Controlling *Salmonella* in Raw Poultry 40 (June 2021).

[129] Corry, J. E., Allen, V. M., Hudson, W. R., Breslin, M. F., & Davies, R. H. (2002). Sources of Salmonella on broiler carcasses during transportation and processing: modes of contamination and methods of control. *Journal of applied microbiology*, *92*(3), 424–432. https://doi.org/10.1046/j.1365-2672.2002.01543.x

[130] Rajan, K., Shi, Z., & Ricke, S. C. (2017). Current aspects of Salmonella contamination in the US poultry production chain and the potential application of risk strategies in understanding emerging hazards. *Critical reviews in microbiology*, *43*(3), 370–392. https://doi.org/10.1080/1040841X.2016.1223600

[131] Gast & Porter, R. E. (2020). Salmonella Infections. In *Diseases of Poultry* (pp. 717–753). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119371199.ch16

[132] Jacobs, L., Delezie, E., Duchateau, L., Goethals, K., & Tuyttens, F. A. (2017). Impact of the separate pre-slaughter stages on broiler chicken welfare. *Poultry science*, *96*(2), 266–273. https://doi.org/10.3382/ps/pew361

[133] Warriss, P.D., Wilkins, L.J., & Knowles, T.G. (1999). The influence of ante-mortem handling on poultry meat quality. Ch. 9 in Poultry Meat Science (Richardson, R.I. & Mead, G.C., eds.).

[134] Kannan, G., & Mench, J. A. (1996). Influence of different handling methods and crating periods on plasma corticosterone concentrations in broilers. *British poultry science*, *37*(1), 21–31. https://doi.org/10.1080/00071669608417833

[135] Nijdam, E., Arens, P., Lambooij, E., Decuypere, E., & Stegeman, J. A. (2004). Factors influencing bruises and mortality of broilers during catching, transport, and lairage. *Poultry science*, *83*(9), 1610–1615. https://doi.org/10.1093/ps/83.9.1610

[136] Gomes, A. V., Quinteiro-Filho, W. M., Ribeiro, A., Ferraz-de-Paula, V., Pinheiro, M. L., Baskeville, E., Akamine, A. T., Astolfi-Ferreira, C. S., Ferreira, A. J., & Palermo-Neto, J. (2014). Overcrowding stress decreases macrophage activity and increases Salmonella Enteritidis invasion in broiler chickens. *Avian pathology: journal of the W.V.P.A*, *43*(1), 82–90. https://doi.org/10.1080/03079457.2013.874006

[137] EFSA Panel on Biological Hazards (EFSA BIOHAZ Panel), Koutsoumanis, K., Allende, A., Alvarez-Ordóñez, A., Bolton, D., Bover-Cid, S., Chemaly, M., De Cesare, A., Herman, L., Hilbert, F., Lindqvist, R., Nauta, M., Peixe, L., Ru, G., Simmons, M., Skandamis, P., Suffredini, E., Dewulf, J., Hald, T., Michel, V., … Davies, R. (2019). *Salmonella* control in poultry flocks and its public health impact. *EFSA journal. European Food Safety Authority*, *17*(2), e05596. https://doi.org/10.2903/j.efsa.2019.5596

[138] Scanes C. G. (2016). Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio. *Poultry science*, *95*(9), 2208–2215. https://doi.org/10.3382/ps/pew137

[139] *Id.*

[140] Warriss, P.D., Wilkins, L.J., & Knowles, T.G. (1999). The influence of ante-mortem handling on poultry meat quality. Ch. 9 in Poultry Meat Science (Richardson, R.I. & Mead, G.C., eds.).

Third, limiting holding times on site would decrease feed withdrawal times. As discussed above, excessive feed withdrawal can increase *Salmonella* risk by: (1) contributing to contamination of the crop—an organ likely to rupture during processing—via ingestion of feces by hungry birds; (2) increasing attachment of *Salmonella* to the bird's intestinal epithelium; and (3) decreasing the integrity of the GIT. Feed is typically withdrawn on farm, therefore any wait time at the slaughter plant unnecessarily extends the period of feed withdrawal.

Fourth, prolonged wait times at the slaughter plant increase the risk that any bruises chickens have sustained during catching, loading, and transport will become increasingly contaminated with bacteria, including *Salmonella*. Such bruises may then cross-contaminate processing equipment if overlying skin is pierced or torn during or after the slaughter process, or may enter the human food supply. As discussed above (*see* section I.C.iv), 90 percent of bruises noted at slaughter are incurred 12 to 24 hours before slaughter. This means that, in the vast majority of bruises in infected poultry awaiting slaughter, levels of bacteria, including *Salmonella*, increase as the birds wait. Thus, the longer the birds are kept in holding, the higher the risk of cross-contamination of processing equipment and other carcasses becomes.

The importance to food safety of preventing excessively long periods of holding at the slaughter plant has long been recognized.[141,142,143] Recent research has continued to document the increased probability of *Salmonella* contamination of both the crop and ceca with prolonged wait times in the processing plant.[144,145] Preslaughter mortality has been shown to increase for every 15 minutes that birds wait at the processing plant prior to slaughter.[146] Though birds dying prior to slaughter will not enter the human food supply, poultry shipments with higher mortality rates are also likely to contain an increased number of compromised birds, in whom poor perfusion due to issues such as dehydration and heat stress increases risk of systemic invasion and dissemination of *Salmonella*.

Finally, also for the reasons explained above, FSIS should not permit slaughter establishments to delay slaughter of flocks arriving at the plant with excessive *Salmonella* loads, referred to in the

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[141] Mulder, R.W.A.W. (1995). Impact of transport and related stresses on the incidence and extent of human pathogens in pigmeat and poultry. *Journal of Food Science*, *15*, 239-246.
[142] Arsenault, J., Letellier, A., Quessy, S., & Boulianne, M. (2007). Prevalence and risk factors for Salmonella and Campylobacter spp. carcass contamination in broiler chickens slaughtered in Quebec, Canada. *Journal of food protection*, *70*(8), 1820–1828. https://doi.org/10.4315/0362-028x-70.8.1820
[143] Arsenault, J., Letellier, A., Quessy, S., Morin, J. P., & Boulianne, M. (2007). Prevalence and risk factors for Salmonella and Campylobacter spp. carcass contamination in turkeys slaughtered in Quebec, Canada. *Journal of food protection*, *70*(6), 1350–1359. https://doi.org/10.4315/0362-028x-70.6.1350
[144] Rajan, K., Shi, Z., & Ricke, S. C. (2017). Current aspects of Salmonella contamination in the US poultry production chain and the potential application of risk strategies in understanding emerging hazards. *Critical reviews in microbiology*, *43*(3), 370–392. https://doi.org/10.1080/1040841X.2016.1223600
[145] Mainali, C., Gensler, G., McFall, M., King, R., Irwin, R., & Senthilselvan, A. (2009). Evaluation of associations between feed withdrawal and other management factors with Salmonella contamination of broiler chickens at slaughter in Alberta. *Journal of food protection*, *72*(10), 2202–2207. https://doi.org/10.4315/0362-028x-72.10.2202
[146]Nijdam, E., Arens, P., Lambooij, E., Decuypere, E., & Stegeman, J. A. (2004). Factors influencing bruises and mortality of broilers during catching, transport, and lairage. *Poultry science*, *83*(9), 1610–1615.

Framework as "logistical slaughter."[147] Permitting establishments to hold flocks that do not meet *Salmonella* targets for later processing would likely be counter-productive, because the longer the waiting period, the greater the levels of infection and contamination among the flock are likely to be. Instead, as suggested by the NACMCF, it could make sense for FSIS to encourage establishments to schedule flocks known to be highly contaminated to be transported to slaughter plants for processing at the end of the day, or with other contaminated flocks.[148]

B. FSIS should require that poultry are protected from severe environmental conditions during holding.

FSIS should require that, upon arrival at the slaughter plant, poultry are provided shelter from temperature extremes, direct sunlight, and adverse weather. All too often, poultry endure brutal environmental conditions while awaiting slaughter.

As AWI documented in a recent letter to members of Congress, numerous instances of birds subjected to extreme heat, cold, and lack of ventilation occur in slaughter establishments across the country each year.[149] Below are just a few examples of such incidents that occurred between January 2019 and September 2021, based on USDA enforcement records; many more examples are included in the letter, which we have attached to these comments:

- At a plant operated by Birdsboro Kosher Farms Corporation, an inspector observed an excessive number of deceased birds (approximately 250) on the floor of the receiving area. Carcass barrels were also full. The inspector noted that it was a hot day (nearly 90 degrees Fahrenheit), and the birds were hot to the touch. The inspector wrote, "The high mortality was consistent with heat exhaustion. There were fans blowing on four of the six trucks, but the misters are inoperational."[150]

- At a plant operated by Kraft Heinz Foods Co., an inspector noted numerous dead birds on the trailers. The temperature was 88 degrees Fahrenheit, and 75 percent of the bays did not have operating misters. Excessive dead birds were found in the live hang area. At least two carts were filled with dead birds in less than 30 minutes.[151]

- At a plant operated by Butterfield Foods Company, an inspector noted a large number of dead birds (2,552 out of 6,000) on one trailer and commented that the temperature the day before was over 90 degrees Fahrenheit. The inspector wrote, "I noticed trailers parked on the lot without any heat abatement on them."[152]

[147] Framework at 6.
[148] NACMCF Salmonella-Poultry Response for Committee Review 32 (Oct. 31, 2022).
[149] AWI letter to Congressional House of Representatives members Rosa DeLauro, Kay Granger, Sanford D. Bishop, Jr., and Jeff Fortenberry (March 2, 2022) ("AWI Letter") (Exhibit A).
[150] *Id.* at 2
[151] *Id.* at 2-3
[152] *Id.* at 3

- At a plant operated by Wayne Farms, LLC, an inspector noted 391 dead-on-arrival ("DOA") birds on one trailer. The inspector wrote, "The birds had the appearance of freezing to death with some having snow and ice on them. The establishment was not protecting the trailers full of birds from the elements in any way . . . . The outside temperature at the time of my observation was -2 degrees Fahrenheit."[153]

- At a plant operated by Agri Star Meat & Poultry, LLC, an inspector reported large numbers of DOAs on three consecutive days in the same week (DOA totals were 3,146, 862, and 4,423), with birds coming in wet and frozen. In some crate modules, 75 percent of the birds were dead. The inspector wrote, "I also observed several trailers with ice accumulation all along the side of the three mod stacks right behind the neck. I observed dead birds that were frozen to the mods and birds with frost accumulated on their feathers."[154]

It is well documented that such severe temperature and weather conditions can increase *Salmonella* levels in live birds, as measured by several different methods.[155] As described above, heat stress increases *Salmonella* risk by numerous mechanisms, including elevated corticosterone levels, increased attachment of *Salmonella* organisms to the lining of the GIT, increased gut permeability, and systemic invasion of *Salmonella*. In addition, cold stress has been found to increase shedding of *Salmonella* in feces,[156,157] potentially because it increases corticosterone levels.[158]

In one study, both high (> 68˚F) and low (≤ 42˚F) ambient temperatures during holding were associated with a higher preslaughter mortality rate.[159] Another study found increased mortality when the maximum daily temperature measured in the shade exceeded 62.6˚F.[160] While birds who die prior to slaughter would not enter the human food supply, it is likely that shipment of birds with high rates of mortality due to extreme temperatures, such as in the above examples, also have higher percentages of moribund birds, in whom poor perfusion decreases the integrity of the GIT barrier, which increases the risk of hematogenous spread of *Salmonella*.

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[153] *Id.* at 6
[154] *Id.*
[155] Linville, J. W., Schumann, D., Aston, C., Defibaugh-Chavez, S., Seebohm, S., & Touhey, L. (2016). Using a Six Sigma Fishbone Analysis Approach to Evaluate the Effect of Extreme Weather Events on Salmonella Positives in Young Chicken Slaughter Establishments. *Journal of food protection*, *79*(12), 2048–2057. https://doi.org/10.4315/0362-028X.JFP-16-173
[156] Soerjadi, A. S., Druitt, J. H., Lloyd, A. B., & Cumming, R. B. (1979). Effect of environmental temperature on susceptibility of young chickens to Salmonella typhimurium. *Australian veterinary journal*, *55*(9), 413–417. https://doi.org/10.1111/j.1751-0813.1979.tb05591.x
[157] Gast & Porter, R. E. (2020). Salmonella Infections. In *Diseases of Poultry* (pp. 717–753). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119371199.ch16
[158] Scanes C. G. (2016). Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio. *Poultry science*, *95*(9), 2208–2215. https://doi.org/10.3382/ps/pew137
[159]Nijdam, E., Arens, P., Lambooij, E., Decuypere, E., & Stegeman, J. A. (2004). Factors influencing bruises and mortality of broilers during catching, transport, and lairage. *Poultry science*, *83*(9), 1610–1615.
[160] Warriss, P. D., Pagazaurtundua, A., & Brown, S. N. (2005). Relationship between maximum daily temperature and mortality of broiler chickens during transport and lairage. *British poultry science*, *46*(6), 647–651. https://doi.org/10.1080/00071660500393868

Protection from the elements is essential to minimizing heat stress, as stressful thermal conditions have been documented to develop rapidly (< 1 hour) in lairage.[161] In addition, extreme weather events are known to impact the percentage of birds identified as *Salmonella*-positive at slaughter plants, both at the time of the event and soon afterwards.[162] Controlling the temperature, air movement, and other environmental conditions in holding is critical. For example, one study found that the modules used to hold birds during transport permitted very little air flow when stationary, leading the authors to conclude that, in addition to minimizing holding times, "more closely controlled environments for broiler lairage facilities are suggested."[163]

To address these threats, FSIS has suggested that establishments consider "whether they have appropriately designed and maintained facilities for bird delivery to the establishment" and "whether holding areas are equipped with an adequate number of fans to ensure proper ventilation for birds."[164] It is clear, however, that despite these guidelines, large numbers of birds continue to be exposed to extreme environmental conditions. For the reasons described above, this elevates the risk of *Salmonella* contamination and puts consumers of poultry products at risk. To effectively reduce heat and cold stress in poultry, and improve food safety, these suggestions should become requirements.

C. FSIS should require that poultry be moved and handled, and equipment be maintained and operated, in a manner that minimizes stress, bruising, and other injuries.

FSIS should require that, throughout the slaughter establishment, the movement and handling of poultry by employees and equipment is performed in a manner that minimizes stress, bruises, broken bones, dislocations, and other physical injuries. This must include the handling of loose birds and birds in transport crates.

In the letter to members of Congress mentioned above, AWI showed that hundreds of incidents of equipment malfunction and improper treatment of poultry occur in slaughter establishments across the country each year.[165] Many of these incidents result in serious injuries to dozens,

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[161] Quinn, A. D., Kettlewell, P. J., Mitchell, M. A., & Knowles, T. (1998). Air movement and the thermal microclimates observed in poultry lairages. *British poultry science*, *39*(4), 469–476. https://doi.org/10.1080/00071669888610

[162] Linville, J. W., Schumann, D., Aston, C., Defibaugh-Chavez, S., Seebohm, S., & Touhey, L. (2016). Using a Six Sigma Fishbone Analysis Approach To Evaluate the Effect of Extreme Weather Events on Salmonella Positives in Young Chicken Slaughter Establishments. *Journal of food protection*, *79*(12), 2048–2057. https://doi.org/10.4315/0362-028X.JFP-16-173

[163] Quinn, A. D., Kettlewell, P. J., Mitchell, M. A., & Knowles, T. (1998). Air movement and the thermal microclimates observed in poultry lairages. *British poultry science*, *39*(4), 469–476, 469. https://doi.org/10.1080/00071669888610

[164] 70 Fed. Reg. 56,624, 56,625 (Sept. 28, 2005).

[165] AWI Letter.

hundreds, or even thousands of birds. Below are a few examples from the more than 200 similar incidents documented in the letter (out of approximately 1,200 records in total):

- At a plant operated by JCG Foods of Alabama, LLC, an inspector observed numerous live and dead birds lodged between conveyor belts after the cage dumper. The inspector wrote, "Birds were caught in machinery by their feet, legs, and wings while being pulled by other birds landing on them. As the belt cleared, I observed bloody birds dismantled with viscera and . . . musculature exposed."[166]

- At a plant operated by Jennie-O Turkey Store, LLC, an inspector observed a major clog (40-50 birds) on the conveyor belt in the unloading area. Employees removed both unconscious and conscious birds by yanking them aggressively. The inspector wrote, "The injured birds had visible acute injuries that ranged from minor scrapes and abrasions to severe injuries that included leg fractures, lacerations and significant mutilation of both muscle tissue and skin."[167]

- At a plant operated by Wayne Farms, LLC, an inspector observed numerous incidents involving bird mistreatment: an employee kicked a bird to remove it from his foot stand; an employee attempted to hang a very small bird onto a shackle twice and both times the bird fell 3 feet from the shackle headfirst onto the concrete floor; additional very small birds were found at the end of a conveyor belt buried under a pile of manure, feathers, and other birds; an employee attempted to use scissors to cut the neck and remove the head of a live, conscious bird; and 30 birds were found in the picking room, including some who were cold, wet and agonal or in pools of bloody water.[168]

- At a plant operated by Ozark Mountain Poultry, Inc., on three different days and throughout numerous shifts, an inspector observed at least 20 chickens that had been mutilated by equipment, including torn up and ripped off legs and mutilated necks and chests. The inspector wrote, "Despite the establishment's assurance on at least 3 prior occasions that their equipment on line 1 had been thoroughly checked . . . the mutilation of birds continued, the cause of which was ultimately determined to be equipment that was in poor repair."[169]

- At a plant operated by OK Foods, Inc., an inspector observed birds getting caught in the gears of moving belts, ripping into their abdomens, crushing their rib cages, and partially amputating their legs. At no point did any of the approximately 15 employees present stop the line to prevent birds from continuing to get caught in the gears. Over 20 birds were eviscerated, mangled and severely injured.[170]

[166] *Id.* at 6.
[167] *Id.* at 15.
[168] *Id.* at 17.
[169] *Id.* at 20.
[170] *Id.* at 24.

From these records, it is clear that large numbers of poultry experience extreme stress and severe injuries while being processed for slaughter. While not all of the incidents described above would necessarily lead to increased *Salmonella* risk to consumers, slaughter establishments that permit such incidents are unlikely to be operating with the level of care needed to minimize *Salmonella* contamination resulting from stress and injuries. Also, although some birds may be killed or condemned prior to slaughter as a result of serious injuries, many others with less severe or less visible injuries may be processed normally.

As discussed above (*see* sections I.C.i and I.C.iv.), trauma and injuries sustained in the preslaughter period increase risk of *Salmonella* contamination of processing equipment, other carcasses, and poultry products by: (1) decreasing perfusion to the gut, and thus increasing the risk of bacterial translocation and spread of *Salmonella* to edible tissues; and (2) causing bruises in which *Salmonella* can survive and replicate far more easily than in healthy tissues. In addition, handling techniques that cause excitement, discomfort, pain, fear, and anxiety can lead to increased stress levels, which reduces immunocompetence (*see* section I.B).[171] All of these factors elevate the risk of cross-contamination of *Salmonella* of processing equipment and other carcasses, increasing the risk to poultry consumers.

FSIS has acknowledged that "stress at pre-harvest can have adverse effects on food safety."[172] To reduce poultry stress and injuries, the agency has suggested that establishments could take a "systematic approach" involving: (1) assessing what circumstances could cause poultry to "experience excitement, discomfort, or accidental injury while being handled in connection with slaughter;" (2) taking steps to mitigate those circumstances; and (3) regularly evaluating "how poultry are being handled and slaughtered" to ensure those circumstances are being minimized.[173] FSIS has also suggested that slaughter plants could consider "whether establishment personnel and equipment handle poultry in a manner that minimizes broken legs and wings."[174] It has also adopted directives instructing inspectors to determine whether establishment employees are mishandling birds.[175] But despite these suggestions and directives, it is clear that egregious instances of injury and mistreatment continue to occur, which elevates the risk of *Salmonella* infection and contamination. FSIS must require, not merely suggest, a systematic approach to ensuring that slaughter plant personnel and machinery handle birds in ways that avoid stress and injury.

[171] Scanes C. G. (2016). Biology of stress in poultry with emphasis on glucocorticoids and the heterophil to lymphocyte ratio. *Poultry science*, *95*(9), 2208–2215. https://doi.org/10.3382/ps/pew137
[172] FSIS Guideline for Controlling *Salmonella* in Raw Poultry 29 (June 2021).
[173] 70 Fed. Reg. at 56,625.
[174] *Id*.
[175] FSIS Directive 6110.1 (July 3, 2018).

D. FSIS should require that stun baths are designed and function in a way that prevents pre-stun shocks.

A fourth step FSIS should take to reduce *Salmonella* contamination is to require slaughter establishments that use electrical water-bath stunning to design the water baths, and ensure that they function properly, so as to prevent "pre-stun shocks." Pre-stun shocks are severely painful electrical shocks experienced by birds when a part of their body, such as a wing, comes into contact with electrified water prior to their heads entering the stun-bath, or when a bird comes into contact with electrified water that has overflowed from the entrance of the water bath onto the entry ramp.[176,177]

Unsurprisingly, birds who experience pre-stun shocks "struggle on the killing line,"[178] a behavior likely to result in increased defecation. In fact, electric shock has been documented to dramatically increase defecation behavior in animals.[179] FSIS has acknowledged that improper stunning can result in *Salmonella* cross-contamination due to "involuntary voidance of feces"[180,181] and "[w]ing flapping and movement."[182]

To prevent these problems, studies suggest that water baths should be "fitted with an electrically isolated entry ramp that slopes upwards towards the bath" and that "support[s] the birds' heads until the end of the ramp where the head drops suddenly into the water bath."[183] In addition, the water-bath design should ensure that the water does not overflow at the entrance of the bath,[184] but instead "leave[s] the water bath at the bird exit." [185] Further, shackle lines must descend quickly enough toward the water bath so that the birds do not receive a pre-stun shock:

> Pre-stun shocks may occur if a shackle line descends too gradually, as birds enter a waterbath. For example, when a bird's beak touches the water current will begin

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[176] Terlouw, E. M. C., Arnould, C., Auperin, B., Berri, C., Le Bihan-Duval, E., Deiss, Lèfevre, F., V., Lensink, B.J., & Mounier, L. (2008). Pre-slaughter conditions, animal stress and welfare: current status and possible future research. *Animal*, 2(10), 1501-1517.

[177] Shields, S. J. & Raj, A. B., M. (2010). A Critical Review of Electrical Water-Bath Stun Systems for Poultry Slaughter and Recent Developments in Alternative Technologies. *Journal of Applied Animal Welfare Science*, *13*(4), 281-299. https://doi.org/10.1080/10888705.2010.507119

[178] Rao, M.A., Knowles, T.G., & Wotton, S. (2013). The effect of pre-stun shocks in electrical water-bath stunners on carcase and meat quality in broilers. *Animal Welfare (22)*. 79-84. https://doi.org/10.7120/09627286.22.1.079

[179] Pietersen, C. Y., Bosker, F. J., Postema, F., & den Boer, J. A. (2006). Fear conditioning and shock intensity: the choice between minimizing the stress induced and reducing the number of animals used. *Laboratory animals*, *40*(2), 180–185. https://doi.org/10.1258/002367706776319006

[180] FSIS A Generic HACCP Model for Poultry Slaughter, 7-8. https://www.fsis.usda.gov/sites/default/files/media_file/2021-03/HACCP-Model-for-Poultry-Slaughter.pdf. see also

[181] FSIS Meat and Poultry Hazards Controls Guide 25 (2018), https://www.fsis.usda.gov/guidelines/2018-0005.

[182] *Id.* at 27.

[183] Terlouw, E. M. C., Arnould, C., Auperin, B., Berri, C., Le Bihan-Duval, E., Deiss, Lèfevre, F., V., Lensink, B.J., & Mounier, L. (2008). Pre-slaughter conditions, animal stress and welfare: current status and possible future research. *Animal*, 2(10), 1501-1517, 1504.

[184] *Id.*

[185] Rao, M.A., Knowles, T.G., & Wotton, S. (2013). The effect of pre-stun shocks in electrical water-bath stunners on carcase and meat quality in broilers. *Animal Welfare (22)*. 79-84, 80. https://doi.org/10.7120/09627286.22.1.079

> to flow and the skeletal muscle in the body will contract, causing the bird to become rigid and typically arch its back (reflex dorsiflexion). This rigidity may effectively lift up the bird, including its head. If, within one second of the initial contact, the beak momentarily loses contact with the water, the bird may receive a pre-stun shock.[186]

FSIS has suggested that slaughter plants could consider constantly monitor stunning equipment to ensure proper functioning.[187] Like the agency's other suggestions, however, this is not enough. The agency should require, not merely suggest, that stunning equipment be closely monitored. Further, it should specifically require that stun baths be designed and function so as to entirely prevent pre-stun shocks. By doing so, FSIS could reduce incidents of birds struggling on the shackle line, flapping their wings, and defecating—all of which would help to reduce *Salmonella* contamination and better protect poultry consumers.

III. FSIS Should Declare *Salmonella* an Adulterant.

The Framework indicates that FSIS is considering declaring *Salmonella*—or certain levels or types of *Salmonella*, or the presence of *Salmonella* in specific raw poultry products—to be an adulterant.[188] It explains that doing so would protect public health by preventing "product with high levels of contamination and/or specific serotypes from entering commerce."[189] According to the Framework, such an approach would be consistent with FSIS's approach to determining the status of certain Shinga toxin-producing *E. coli* ("STEC") in specific raw beef products as adulterants.[190] The Framework signals that FSIS intends to soon release a proposal that will, similar to its proposal here, determine that "*Salmonella* meets the criteria to be considered an adulterant in not-ready-to-eat (NRTE) breaded and stuffed raw chicken products."[191]

We support FSIS's intentions to declare *Salmonella* an adulterant. Doing so would help protect poultry consumers for the reasons the Framework explains. It would also benefit poultry because, as explained above, strategies to reduce *Salmonella* infection and contamination include improving treatment and environmental conditions for live birds such that stress and injuries are reduced. However, FSIS should exercise caution and carefully explain its legal basis for declaring *Salmonella* an adulterant, because courts have expressed nuanced views about the agency's regulatory authority in this context.

In enacting the Poultry Products Inspection Act ("PPIA"), Congress recognized that "unwholesome" and "adulterated" poultry products are "injurious to the public welfare" and that regulation of poultry and poultry products is appropriate "to protect the health and welfare of

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[186] Humane Slaughter Association, Electrical Waterbath Stunning of Poultry, Pre-stun socks at the entrance to the waterbath, https://www.hsa.org.uk/pre-slaughter-handling--restraint/pre-stun-shocks-at-the-entrance-to-a-waterbath.
[187] 70 Fed. Reg. at 56,625.
[188] Framework at 9-10.
[189] *Id.* at 10.
[190] *Id.*
[191] *Id.*

consumers." 21 U.S.C. § 451. Congress further emphasized the importance of inspecting poultry and poultry products and regulating their processing and distribution in order "to prevent the movement or sale in interstate or foreign commerce" of adulterated poultry products. *Id.* § 452.

The PPIA defines "adulterated" to mean, among other things, any poultry product that: (1) contains any "deleterious substance" in quantities that render the product "injurious to health" (*id.* § 453(g)(1)); (2) "consists in whole or in part of any filthy, putrid, or decomposed substance or is for any other reason unsound, unhealthful, unwholesome, or otherwise unfit for human food" (*id.* § 453(g)(3)); or (3) "has been prepared, packed, or held under insanitary conditions whereby it may have been contaminated with filth, or whereby it may have been rendered injurious to health" (*id.* § 453(g)(4)).

In considering whether or how pathogens qualify as adulterants under these definitions, courts have taken nuanced approaches. For example, courts have found that *E. Coli*, but not *Salmonella*, meets the definition of an adulterant under the language of section 453(g)(1)—that is, as a "deleterious substance which may render it injurious to health." *Compare Texas Food Industry Assoc. v. Espy*, 870 F. Supp. 143, 149 (W.D. Tex. 1994) (finding that *E. Coli* "fits the definition of an adulterant" under the identical language of the Federal Meat Inspection Act ("FMIA"), 21 U.S.C. § 601(m)(1)) *with American Public Health Assoc. v. Butz*, 511 F.2d 331, 334 (D.C. Cir. 1974) (finding that *Salmonella* in meat "does not constitute adulteration" under the same definition).

These different results turned, in one court's view, on the term "ordinarily" in the definition of adulterated. *See Texas Food Industry Assoc. v. Espy*, 870 F. Supp. at 148-149. The court found that, on the one hand, "ordinary methods of cooking and preparing food kills the *Salmonella* pathogen," while on the other, preparing certain foods in ways that many Americans consider proper (such as ground beef "cooked rare, medium rare, or medium") does not kill *E. Coli*. *Id.* In the Court's view, this difference in ordinary cooking practices rendered one pathogen, but not the other, an adulterant. *Id.*

In another case, the U.S. Court of Appeals for the Fifth Circuit found that *Salmonella* was not an adulterant because "*Salmonella* itself does not render a product 'injurious to health.'" *Supreme Beef Processors, Inc. v. USDA*, 275 F.3d 432, 443 (5th Cir. 2001) (interpreting two definitions of "adulterated" under the FMIA—sections 601(m)(1) and (m)(4)—that are identical to corresponding definitions under the PPIA). Yet, despite these decisions, another court held open the possibility that *Salmonella* could still constitute an adulterant. It pointed out that neither *Butz* nor *Supreme Beef* analyzed section 453(g)(3)'s definition of adulterated, "and neither squarely held that Salmonella on raw meat or poultry can never, under any circumstance, be deemed an adulterant under any statutory definition." *Craten v. Foster Poultry Farms Inc.*, 305 F. Supp. 3d 1051, 1058 (D. Ariz. 2018). Indeed, "[t]hough the scant case law that exists suggests that Salmonella on raw poultry is not an adulterant *per se*, and that its mere presence does not *in and of itself* show that a product was produced under insanitary conditions, these cases do not entirely foreclose the possibility that Salmonella may be deemed an adulterant under the PPIA when

products contaminated with the bacteria are associated with an illness outbreak." *Id.* at 1060 (emphasis in original).

In light of these decisions, we support a determination by FSIS that *Salmonella* is an adulterant, and that *Salmonella*-contaminated poultry products are adulterated. But we recommend that, in making its determination, FSIS take a cautious approach and thoroughly explain its legal basis for doing so. At least one commenter has claimed that FSIS does not have the legal authority to make such a declaration.[192]

IV. Conclusion

For the reasons explained above, we urge FSIS to include in its Framework proposals to require that, upon arrival at slaughter plants: (1) the time poultry spend waiting for slaughter is minimized, and may in no case exceed four hours; (2) poultry are kept in an area where they are protected from temperature and weather extremes; and (3) poultry are not handled in such a way that would cause stress, bruising, bone fractures, dislocations, or other physical injuries. In addition, in facilities where electrical water-bath stunning is used, stun baths must be designed and function so as to prevent pre-stun shocks. Finally, we support and appreciate FSIS thoughtfully moving forward with proposing to declare *Salmonella* an adulterant.

Thank you for considering our comments.

Sincerely,

Gwendolen Reyes-Illg, DVM, MA
Veterinary Advisor, Farm Animal Program

Zack Strong
Senior Staff Attorney, Farm Animal Program

/s Lauri Torgerson-White

Lauri Torgerson-White
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Attachment

[192] American Pastured Poultry Producers Association, Comments Re: Proposed Framework for Controlling Salmonella in Poultry – Docket No. FSIS-2022-0029 3 (Nov. 16. 2022).

Exhibit A

Animal Welfare Institute
900 Pennsylvania Avenue, SE, Washington, DC 20003

March 2, 2022

The Honorable Rosa DeLauro
Chair
House Committee on Appropriations
H-307 The Capitol
Washington, DC 20515

The Honorable Kay Granger
Ranking Member
House Committee on Appropriations
1016 Longworth House Office Building
Washington, DC 20515

The Honorable Sanford D. Bishop, Jr.
Chair
Agriculture Appropriations Subcommittee
2362-A Rayburn House Office Building
Washington, DC 20515

The Honorable Jeff Fortenberry
Ranking Member
Agriculture Appropriations Subcommittee
1001 Longworth House Office Building
Washington, DC 20515

Dear Chair DeLauro, Ranking Member Granger, Chair Bishop, and Ranking Member Fortenberry:

RE: Loss of Process Control During Poultry Slaughter

As the Fiscal Year 2022 Agriculture Appropriations report notes, "The Committee recognizes that the handling of birds at slaughter according to Good Commercial Practices (GCP) improves quality and reduces the occurrence of adulterated poultry products in the marketplace."[1] It further "directs the Department [of Agriculture] to brief the Committees on documented instances where establishments lost control of their processes for handling birds, and consequently were not operating in accordance with GCPs, no later than 180 days after the date of enactment of this Act."

The Animal Welfare Institute (AWI) would like to take this opportunity to provide the Committee with a list of documented incidents where poultry establishments lost process control during the handling of live birds at slaughter (Attachment 1). The incidents are based on USDA enforcement records—Noncompliance Records (NRs) and Memorandums of Interview (MOIs)—obtained by AWI under the Freedom of Information Act (FOIA).

AWI has monitored USDA oversight of bird handling at slaughter since January 2006, when the department's Food Safety and Inspection Service (FSIS) initiated GCP verification procedures during each shift at all federal inspected poultry slaughter establishments. Since that time, we have reviewed 4,000-5,000 USDA enforcement records (NRs and MOIs) related to GCP. Under a recent agreement to settle litigation brought by AWI and Farm Sanctuary, the USDA is now proactively releasing these records, without the need for a FOIA request, and they are available to the public on the FSIS datasets webpage. However, inspector oversight of live bird handling appears to vary widely at USDA-inspected poultry

[1] H. Rept. 117-82. Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Bill for Fiscal Year 2022.

slaughter establishments, and as a result, it is likely that most GCP violations are not observed and/or recorded by FSIS.[2]

Below is additional information related to "loss of process control" incidents and USDA's oversight of live bird handling that may be of interest to the Committee:

1. "Loss of Process Control" incidents result in death other than by slaughter.

The list of "loss of process control" incidents provided in Attachment 1 occurred between January 2019 and September 2021. It includes 212 incidents, which represent a sample of approximately one-fifth of the 1,200 GCP records issued by USDA to poultry slaughter establishments during the period.

The most common type of incident included in the sample is death due to drowning in the scalding tank (see table below). Although scalding incidents were common, the number of animals affected in each incident was generally low, typically a few dozen at most. The second most common type of incident—severe injury or death due to equipment malfunction—often resulted in hundreds of birds dying due to suffocation on the live hang belt, or dozens of birds dying due to drowning in the waterbath stunner. Deaths during transport and/or holding at the plant represent the third most common type of incident and killed the highest numbers of animals. A single incident can result in the deaths of thousands or even tens of thousands of birds. The four least common incidents all killed relatively low numbers of animals. All these types of incidents have the potential to result in the death of birds other than by slaughter and the adulteration of poultry products.

Loss of Process Control Incidents During Live Bird Handling

Type of Incident	Percent
Death due to drowning in scald tank	27.8
Severe injury or death due to equipment malfunction	26.9
Death due to exposure, overcrowding, or extended holding period	13.7
Potential for injury or death due to burying of live birds	11.3
Potential for injury or death due to intentional mistreatment of birds	9.0
Potential for death in scald tank due to inadequate bleeding	6.1
Potential for injury or death to loose birds in unloading/dumping area	5.2

[2] According to AWI's analysis of USDA enforcement records, between 2017 and 2019, more than one-third (35.0 percent) of federally inspected poultry plants were issued no records whatsoever by the USDA documenting the company's compliance with GCP or describing discussions between inspectors and company personnel on proper bird handling to reduce adulteration. Animal Welfare Inst., *The Welfare of Birds at Slaughter in the United States* 7 (Nov. 2020) https://awionline.org/sites/default/files/publication/digital_download/20TheWelfareBirdsSlaughter.pdf.

2. PPIA regulations do not address reducing adulteration resulting from live bird handling practices.

The USDA cites two PPIA regulations as evidence of the department's oversight of live bird handling. Regulation 9 C.F.R. § 381.65(b), which cites the term "good commercial practices," only addresses birds drowning in the scald tank and does not refer to any other aspect of live bird handling that has the potential to cause adulteration. Moreover, the USDA has interpreted the regulation as only applying in situations where multiple birds drown in the scald tank, representing a loss of process control.[3] The second regulation, 9 C.F.R. § 381.90 requires that "[c]arcasses of poultry showing evidence of having died from causes other than slaughter shall be condemned," but it does not prohibit behavior that can result in death other than by slaughter.

Most of the incidents included in Attachment 1 that resulted in high numbers of animal deaths were documented by inspection personnel as non-regulatory MOIs, reflecting the USDA's failure to regulate bird handling. The USDA has denied AWI and Farm Sanctuary's request that the agency regulate bird handling to reduce adulteration. In its denial, the department inexplicably claims that it lacks authority under the PPIA to regulate practices that result in adulteration.[4] Despite this position, the USDA inspects for compliance with non-regulatory good commercial practices on every shift in every poultry slaughter establishment, and it routinely takes regulatory control actions in response to violation of non-regulatory GCPs, as illustrated by many of the incidents included in Attachment 1.[5] While the USDA claims it lacks the authority to regulate bird handling, likely to avoid the rigors of the rulemaking process, the actions of its inspectors suggest otherwise.

3. USDA's GCP directive does not address all major causes of adulteration.

In July 2018, the USDA published an FSIS directive on the verification of poultry good commercial practices, consolidating relevant information from the FSIS directive on *Ante-mortem and Post-mortem Poultry Inspection*.[6] The directive offers the following examples of an establishment losing control of its process for handling birds: 1) birds dying other than by slaughter, 2) birds not being properly bled out, and 3) birds being intentionally and repeatedly mistreated by establishment personnel.[7] The directive notes that mistreatment does not demonstrate that the establishment's process is out of control if only single or small numbers of birds are involved, or it is an isolated incident that does not represent an ongoing problem.[8] The directive also does not address certain handling

[3] The USDA directive addressing Good Commercial Practices includes the following note: "An isolated instance does not represent a loss of process control and is to be documented in a mistreatment MOI, not an NR." USDA-FSIS, VERIFICATION OF POULTRY GOOD COMMERCIAL PRACTICES, DIRECTIVE 6110.1, 4 (July 2018) (Attachment 2). *See also* Attachment 1 of the Directive (pp.7).

[4] FSIS Final Response to Petition No. 13-08, *Petition to Regulate Practices and Actions that Result in Adulterated Poultry Products* (Nov. 25, 2019) https://www.fsis.usda.gov/federal-register/petitions/petition-regulate-practices-and-actions-result-adulterated-poultry.

[5] In Attachment 1, Noncompliance Records are identified by the letter "N" at the end of the record number, while non-regulatory MOIs are identified by the letter "G." *See* i*nfra* part 5.

[6] VERIFICATION OF POULTRY GOOD COMMERCIAL PRACTICES, *supra* note 3 at 1.

[7] *Id.* at 3.

[8] *Id.* at 4.

practices, including shackling and caging, that result in broken bones and/or bruising but do not involve intentional mistreatment, or transport and holding conditions that result in stress but not death.[9]

4. USDA's failure to regulate bird handling has resulted in confusion and inconsistency.

AWI's review of poultry handling enforcement records suggests that FSIS inspection personnel are confused by the GCP directive and inconsistent in applying it to the incidents they observe at poultry establishments. For example, of the incidents in Attachment 1 that inspectors described as "loss of process control," approximately half (52.3 percent) were documented as Noncompliance Records and approximately half (47.7 percent) as Memorandums of Interview. Moreover, in nearly two-thirds (62.3 percent) of situations where an FSIS inspector noted taking a regulatory control action, the incident was documented not as an NR, but as a non-regulatory MOI.[10] In many cases where the GCP directive indicates an NR is appropriate, an MOI was issued, and vice versa.

Conclusion and Recommendation

One of the most effective ways of reducing the adulteration of poultry products would be to increase the amount of time inspection personnel spend on GCP verification of live bird handling. FSIS inspectors save many live birds from entering the scald tank and drowning while they are conducting GCP reviews. And, in some cases, inspectors take regulatory control actions, such as rejecting a piece of equipment or stopping and/or slowing the line, during their GCP verification activities to reduce the potential for adulteration. Increasing GCP verification would significantly reduce the incidence of both death other than by slaughter and the adulteration of poultry products at slaughter establishments.

AWI greatly appreciates your attention to this matter as part of the Fiscal Year 2022 appropriations process; we recommend that Congress further examine the USDA's oversight of live bird handling incidents with the potential to cause adulteration in poultry products. Specifically, we recommend report language in the Fiscal Year 2023 Agriculture Appropriations Bill directing the USDA to track the number of inspection program personnel hours spent on verifying poultry industry compliance with Good Commercial Practices, which can be accomplished through use of the existing FSIS Humane Activities Tracking System (HATS) program.

Please feel free to contact me at dena@awionline.org or 202-446-2146 with any questions.

Sincerely,

Dena Jones

Dena Jones
Director, Farm Animal Program

Attachments

[9] Scientific research has suggested that stress in farm animals can negatively impact meat quality and food safety. *See* USDA-ARS, STRESS IN FARM ANIMALS AND FOOD SAFETY: IS THERE A CONNECTION? (FACT SHEET) (2010).
[10] *See supra* note 5.

Attachment 1

Loss of Process Control Incidents, as Documented in USDA-FSIS Records (January 2019 – September 2021)

Prepared by the Animal Welfare Institute, January 2022

Loss of Process Control Incidents During Bird Handling at Slaughter, as Documented in USDA-FSIS Records

(January 2019 – September 2021)

Plant No.	Plant Name	Date of Record	Record No.	Description of Incident
P764	Perdue Foods LLC	9/21/2021	CWA3209093921G	Inspector observed that one of the kill lines was stopped, but the birds had not been removed from the electric water stunner. All the birds whose heads were submerged in the water [number redacted by FSIS] appeared to have drowned. Inspector placed a reject tag on the kill line control lever and noted that the birds "had died by means other than slaughter."
P45134	Birdsboro Kosher Farms Corp.	9/13/2021	FKJ3709095713G	Inspector noted "an unusual amount of mortality on some of the lower crates" loaded onto one trailer. "At the point where I estimated at least 200 dead birds and the truck was only about ¼ unloaded, I called for a halt to slaughter." It was observed that some of the cages were overcrowded, but the exact cause of the high mortality was not determined.
P1284	Pilgrim's Pride Corporation	9/10/2021	GDA0714092110G	Inspector observed live hang personnel "mishandling live birds." A worker was aggressively shackling several live birds by throwing them at the shackle instead of carefully placing birds into shackles. "I took immediate action and stopped the picking line."
P511	Butterball LLC	8/26/2021	HUG0711083427N	Inspector counted 10 red birds that had drowned in the scald tank. "These carcasses are cadavers as they died from a cause other than slaughter."
P47016	The Best Dressed Chicken Inc.	8/24/2021	OFG1123084124G	Inspector observed the dumper employee was not able to see that the live hang conveyor belt had stopped running, and he proceeded to dump more birds on top of the live birds already on the belt. Some birds suffocated as a result, and these dead chickens were being tossed onto the floor and into the condemned barrel.
P46070	Marble City Meats LLC	8/17/2021	KLE1513085017G	Inspector noted that 16 of 45 turkeys died on the trailer during transport from field to slaughter. "Upon discussion with establishment owner, he stated that he believed it was the heat and the overcrowded trailer that caused the several deaths."
P4653A	Agri Star Meat & Poultry LLC	8/12/2021	HRJ5714081112G	Inspector was informed of a "pileup" in the poultry live hang area resulting in smothered birds. Inspector learned that there had been a malfunction of the kill belt and the employee operating the dumper belt was not informed

				to leave the dumper belt off while maintenance was performed. "Approximately [number redacted] birds were smothered as a result."
P45068	NY Livestock Market Inc.	8/5/2021	LTN5212085705N	Inspector saw approximately 20 birds in a barrel that hadn't been properly bled before scalding.
P47016	The Best Dressed Chicken Inc.	8/3/2021	OFG5622080703G	In live hang area, inspector saw 6 barrels of dead chickens and a pile about a foot high of dead birds at the end of the live hang conveyor. Establishment personnel told inspector that conveyor belt had stopped operating, but the cage dumper continued dumping birds, causing birds on the bottom to suffocate. "I issued [an MOI] on 6/30/2021 for a similar issue and was told that the establishment would implement a way to prevent this from happening again, possibly installing a mirror. There has not been a mirror installed to date [more than one month later]."
P51179	Sanderson Farms Inc.	7/29/2021	RQE4813072229G	Inspector noted that misters in holding area were not on, and the birds were showing signs of distress. The temperature was 88 degrees Fahrenheit with a real feel of 101 degrees F. "I noticed too many to count [birds] were panting and 3-4 Dead on Arrival (DOA) in the live trailers."
P768	Tyson Foods Inc.	7/29/2021	BFC2710073229G	Inspector observed that line had been stopped to deal with a maintenance issue, but birds had not been removed from the water stunner. "Most of the birds retrieved from the stunner had drowned and were dead…. Allowing these chickens to drown caused undue suffering /pain/ mistreatment and death by means other than slaughter."
P45134	Birdsboro Kosher Farms Corp.	7/27/2021	FKJ1607071827G	Inspector observed an excessive amount of deceased birds (approximately 250) on the floor of the receiving area. Carcass barrels were also full. Inspector noted that it was a hot day (nearly 90 degrees F), and the birds were hot to the touch. "The high mortality was consistent with heat exhaustion. There were fans blowing on four of the six trucks, but the misters are inoperational."
P4653A	Agri Star Meat & Poultry LLC	7/8/2021	HRJ3612074708G	Inspector observed the kill belt in the live hang area not operating with birds stacked up at the entrance to the tunnel. A large section of the belt had birds stacked 4 deep, with the lower level suffocated to death. "All told, 317 dead birds were removed from the belt after the affected section was brought into the kill room."
P9070	Kraft Heinz Foods Co.	7/7/2021	OWA2611075707G	Inspector noted numerous dead birds on the trailers. The temperature was 88 degrees, and 75% of the bays did not have operating misters. Excessive

				dead birds were found in the live hang area (from one trailer with dead birds). At least 2 carts were filled with dead birds in less than 30 minutes.
P47016	The Best Dressed Chicken Inc.	7/6/2021	OFG0301073608N	Inspector noted many cadavers during the shift and took a control action by applying a reject tag to the bird dumper. “The slaughter process was not in control; despite any corrective actions the establishment took, cadavers persisted throughout the shift."
P544	Jennie-O Turkey Store LLC	7/2/2021	IYW1115071902G	Inspector observed two cages holding many dead birds [number redacted by FSIS]. It was determined that the cages were overstocked and noted that a similar incident had occurred a couple weeks prior.
P45068	NY Livestock Market Inc.	6/18/2021	LTN1507064318N	Inspector observed employees putting live birds into barrels right after cutting, skipping the bleeding cones. “I immediately stopped the slaughter and put USDA reject tags on the barrels containing the live birds.”
P215	Butterfield Foods Company	6/9/2021	GXN3910061209G	Inspector noted a large number of dead birds (2,552 out of 6,000) on one trailer and commented that the temperature the day before was over 90 degrees Fahrenheit. “I noticed trailers parked on the lot without any heat abatement on them.”
P7100	Tyson Foods Inc.	6/7/2021	ZHB5920062009N	Inspector observed a total of 5 live, conscious, and uncut birds who, without the inspector’s intervention, would have entered the scald tank and drowned. “I informed establishment that their process was out of control….”
P47016	The Best Dressed Chicken Inc.	6/6/2021	OFG1403064708N	Inspector observed numerous cadavers being placed in condemn barrels. The inspector determined that the cadavers were due to improper cutting of the birds. “The establishment lost control of its process for handling birds, resulting in two condemn barrels of birds (cadavers) that died by causes other than slaughter.”
P47016	The Best Dressed Chicken Inc.	6/2/2021	OFG5011064502N	Inspector observed about a dozen cadavers in less than 2-3 minutes and another 11-16 live birds without a neck incision heading for the scald tank. The inspector took regulatory control of the line. Later the same day, the inspector again took regulatory control of the line because too many birds were entering the scalder alive. “The amount of cadavers prior to my taking control amounted to at least 44 cadavers entering the scalder.”
P7487	Koch Foods Inc.	5/25/2021	SPG5301055526N	Inspector observed 7 live birds entering the scalder. “I explained that the process was out of control and that live hang was tagged and a GCP noncompliance would be issued.”

P1362	Tyson Foods Inc.	5/20/2021	LPC3509052620G	Inspector observed a worker standing on top of the conveyor belt carrying live birds and other workers pushing down on the conveyor belt and tossing live birds at the team member standing on the belt. “I notified [redacted] [about] the concern of how live birds coming in were being handled and being tossed and the loss of process control….”
P45068	NY Livestock Market Inc.	5/19/2021	LTN1407055124N	Inspector observed a number of birds were still moving inside the holding barrels before the scalder. “I immediately stopped all slaughter and had them remove every single bird in both barrels for examination.”
P3	Mountaire Farms of DE	5/17/2021	OCG5218054217G	Inspector observed loose live birds, too numerous to count, walking around the room and on the floor under the live hang belts. “I immediately took a regulatory control action and placed USDA Reject Tag No. B38473223 on the controls for dumper #1 and stopped the dumping of more chickens onto the belt.”
P17766	Southern Hens Inc.	4/15/2021	SSN2514045815N	Inspector observed multiple cadaver birds being removed at the sorting station and condemned by plant personnel. “Multiple live birds continuing to get past all establishment preventive measures in place and enter the scalder exemplified a loss of process control.”
P47016	The Best Dressed Chicken Inc.	4/13/2021	OFG1015043413N	Inspector observed 2 live birds on the bleed line that were alert; both birds subsequently fell out of their shackles. Other live birds were seen headed toward the scald tank with minimal or no incision to their necks. Inspector took regulatory control and stopped slaughter, but after control was released, the problem reoccurred. In total, approximately 50 cadavers were removed from the line with either no cut to the neck or only a superficial cut.
P727	Simmons Prepared Foods Inc.	4/9/2021	VCF4300045812N	Inspector observed 5 live birds going into the scalder in less than 1 minute. The inspector took regulatory control, ordering the line speed reduced. “The establishment was able to demonstrate control at that speed. I verified the process was still in control and released the line speed.”
P325	Tyson Foods Inc.	4/5/2021	YDM0008042506N	Inspector observed 7 birds that had been deposited in the condemn barrel without neck cuts. “It was apparent that all 7 of these birds had not been properly bled and had entered the scalder still breathing.” Noncompliance Record was issued.

P51179	Sanderson Farms Inc.	4/1/2021	RQE0419044401N	Inspector observed approximately 15 DOA (Dead on Arrival) birds comingled with live birds on the floor between the back wall and lines 3 and 4. Noncompliance Record was issued.
P481	Tyson Foods Inc	3/24/2021	VHF4612031124G	Inspector observed that "chickens were being killed by means other than slaughter." A malfunctioning cage dumper was causing birds to be caught between a moving conveyor belt and the framework of the dumping system. "The process was immediately halted and USDA Reject Tag was applied to the system."
P44992	Windy Meadows Family Farm	3/17/2021	FCY1615031317G	Inspector observed a large number of live and dead birds being placed on the middle table in the kill room. "There was such a large number that birds were being piled on top of one another to the point that they were falling off the table and onto the floor…. This event represents a loss of process control of Good Commercial Practices."
P46826	Shenandoah Valley Organic	3/17/2021	BOK2309034919N	Inspector observed "multiple instances of birds dying other than by slaughter which indicated loss of process control and a failure to slaughter these birds in accordance with good commercial practices." Empty crates were falling off the end of the conveyor belt every few seconds onto loose live birds on the concrete floor below.
P481	Tyson Foods Inc.	3/16/2021	VHF4305034716G	Inspector noted that the cull basket affixed to the end of the live hang belt was full. "Multiple birds on the bottom layer were observed gasping for breath and in distress. During observation numerous birds were being added to the bin, preventing control from being regained."
P727	Simmons Prepared Foods Inc.	3/16/2021	VCF3705030116G	Inspector noted 40 birds missed by kill blade during 3 spot checks. Establishment slowed the line, and inspector verified line was "back in process control."
P17980	Pilgrim's Pride Corporation	3/15/2021	ZBB4308033515G	5 cadaver birds observed coming out of the scald tank 1 minute apart. "There was no cut to the neck on any of these carcasses…. The establishment's back-up killer step in their slaughter process failed to prevent live birds from entering the scald tank."
P1284	Pilgrim's Pride Corporation	3/7/2021	GDA0104033508N	Inspector observed many chickens that were breathing, eyes open, and opening and closing their beaks just before the scald tank. Inspector pulled the cord to stop the line. "Over the next several minutes, 36 cadavers were removed from the picking line."

P727	Simmons Prepared Foods Inc.	3/3/2021	YCF0900030508N	Inspector observed birds at the rehang table that appeared to have died other than by slaughter. Process was found to be "out of control" at the kill station due to undersized birds missing the kill blade.
P548	JCG Foods of Alabama LLC	3/1/2021	WYI4416030501G	Inspector noted every 8th or 9th carcass on the line had broken wings with bones protruding and some open fractures and bruising. "There was an employee stationed in this location with a long pole that had a pointed metal spear-like end, and he was using this tool to attempt to free birds from machinery…. I took a regulatory control action and stopped live hang." (Incident occurred on 2/26.)
P548	JCG Foods of Alabama LLC	3/1/2021	WYI4416030501G	Inspector observed birds dying other than by slaughter at the location of the conveyor belts directly after the cage dumper. "Live and dead birds were lodged by various body parts as other birds were moving over top of them and pulling them along (while lodged). I took regulatory control action and stopped live hang at this time." (Incident occurred on 2/24.)
P548	JCG Foods of Alabama LLC	3/1/2021	WYI4416030501G	Inspector observed numerous live and dead birds lodged between conveyor belts after the cage dumper. "Birds were caught in machinery by their feet, legs, and wings while being pulled by other birds landing on them. As the belt cleared, I observed bloody birds dismantled with viscera and … musculature exposed."
P1009	Wayne Farms LLC	2/16/2021	DSM0208020016G	Inspector noted a large number of DOAs on one trailer. "The birds had the appearance of freezing to death with some having snow and ice on them. The establishment was not protecting the trailers full of birds from the elements in any way…. The outside temperature at the time of my observation was -2 degrees Fahrenheit." (391 DOAs were reported.)
P049	Pitman Farms Inc. (Moroni Turkey Processing)	2/12/2021	MMK0314024312G	Inspector observed trailer with no solid floor panel between levels, resulting in birds in upper coop being piled on top of birds in coop below it. Inspector counted 15 dead birds and 2 live birds removed from the coop. "The birds on the lower level of the group had died by means other than slaughter." (A similar incident occurred at the same plant 3 days later.)
P4653A	Agri Star Meat & Poultry LLC	2/9/2021	HRJ3409025009G	Increased DOAs on 3 consecutive days in same week, with birds coming in wet and frozen. (DOA totals were 3,146; 862; 4,423.) Some crate modules with 75 percent of birds dead. "I also observed several trailers with ice accumulation all along the side of the three mod stacks right behind the neck. I observed dead birds that were frozen to the mods and birds with frost accumulated on their feathers."

P47016	The Best Dressed Chicken Inc.	2/2/2021	OFG4621021803N	Inspector took regulatory control action of the line after observing live birds with no neck cut entering the scalder. “As a result of this, at least 60 birds entered the scalder alive.”
P6164A	Foster Farms	1/26/2021	QIJ0819012426G	Inspector observed several birds inappropriately shackled. “I noticed the hock on the free hanging leg was completely incised and was dangling by a thread of synovial membrane and skin. The entire foot was missing distal to the hock joint in two other birds.” (Similar incidents occurred at the same plant on 4 consecutive days -- 1/25, 1/26, 1/27, and 1/28.)
P533	FreeBird Chicken	1/25/2021	AKB2922014725G	Inspector observed a situation where birds died by means other than slaughter. “A new employee operating the cage dumper had dumped one load of chickens on top of another, suffocating them. Approximately 180-193 birds died in the dumper hopper.”
P6666	Koch Foods of Gadsden LLC	1/20/2021	GQH5923010320G	Inspector observed a large pile of birds on the conveyor belt with live birds mixed in the pile along with dead birds and debris. A regulatory control action was taken and the line stopped. “The establishment took off approximately 87 dead birds filling up over 2 condemn barrels.”
P737	House of Raeford, Wallace Division	1/18/2021	DHA4612015018G	Inspector observed 14 live, uncut birds removed from the line just before entering the scalder. Inspector notified plant management that they were “assuming regulatory control of the establishment’ Line 1 and lowering line speed due to loss of process control.”
P768	Tyson Foods Inc.	1/4/2021	BFC2112010404G	Inspector observed live hang area littered with chickens, both live and dead. “Live birds that comingle with dead birds can lead to suffocation and death by means other than slaughter which is less than Good Commercial Practices…. The establishment was not implementing their plan as written and their process was out of control.”
P45910	Sanderson Farms Inc.	12/22/2020	GRI0706125022G	Inspector observed multiple live birds enter the scalder and asked that the line be stopped. “Maintenance evaluated the equipment and adjusted the stunners on both lines. The birds were not being stunned properly.”
P1949	Simmons Prepared Foods Inc.	12/21/2020	KLA3307125721G	Inspector observed approximately 80 dead birds on the concrete floor with numerous live birds also under the live hang platform and the live hang belt. “IPP [in-plant personnel] remained in the area until all birds were handled appropriately.”
P533	FreeBird Chicken	12/20/2020	AKB1223124122N	Inspector found a pile of chicken carcasses (approximately 20-30 birds) on the floor of the live hang room. A worker informed the inspector that a

				new employee had dumped a load of chickens on top of another load, suffocating the birds. Approximately 180-193 birds died in the dumper hopper. “The large number of birds that died by means other than slaughter is evidence that the process is out of control and represents a noncompliance with 9CFR381.65(b).”
P51179	Sanderson Farms Inc.	12/17/2020	RQE4420123817G	After the picker line broke down, inspector immediately checked the stunner and found that 31 young chickens had drowned. “Regulatory control action is not being applied because the establishment has decided to terminate the operation of the aforementioned line.”
P511	Butterball LLC	12/9/2020	HUG1111123709N	Inspector observed a total of 20 carcasses in under 2 minutes exit the picker with a deep red coloration to their skin indicating they were still breathing when entering the scald tank. “The plant’s loss of process control and failure to handle birds in accordance with Good Commercial Practices violates 9CFR381.65(b).”
P7987	Amick Farms Inc.	12/7/2020	QKA3821125907G	Inspector observed dozens of birds piled on top of each other on the live hang belt. “I concluded that the birds had piled up on the belt, suffocated, and died…. Poultry that die from causes other than slaughter are considered adulterated and must be condemned. Employing humane methods of handling and slaughter reduces the likelihood of producing adulterated product.”
P1480	Tip Top Poultry Inc.	11/19/2020	JBA0521114519G	Inspector observed numerous birds with very small nicks on their necks that had not bled out properly before entering the scald tank. Inspectors instructed that if the situation occurs again, “to stop the process until it can be brought back in control.”
P737	House of Raeford, Wallace Division	11/14/2020	DHA0109114514G	Inspector observed multiple birds without cuts on their necks being removed from the line before the scalder. Inspector lowered the line speed. “I chose to issue a GCP MOI and a Other Inspection Requirements noncompliance to document the line speed reduction due to loss of process control.”
P51179	Sanderson Farms Inc.	11/10/2020	RQE3505112210G	Inspector entered the plant at the live hang entrance “to find circumstances out of control.” Inspector observed a dozen live birds on the floor with feathers and multiple dead birds.
P806	Tyson Foods Inc.	11/5/2020	OGC4720114805G	Inspector observed 80-100 loose live chickens on the live hang platform. Birds were piling up because no one was in the end hanging position. “I

				took an official control action and had them stop dumping any more cages of live chickens onto the belt."
P51179	Sanderson Farms Inc.	11/1/2020	RQE4117111601G	Inspector observed the line was not operating but birds were still submerged in the water stunner. "I then suggested that [the worker] drain the stunner by pulling the drain hose on the equipment to allow the water to drain. Allowing birds to remain in the stunner when the line has stopped for an extended period of time results in the drowning of those birds causing them to die by means other than slaughter."
P751	Pitman Farms Inc. (Moroni Turkey Processing)	10/30/2020	MMK0113104830G	Inspector learned that live birds were still hanging while the line was stopped to be repaired. Inspector observed approximately 19 birds submerged in water within the electrical stunner with the current running. Inspector informed plant management that "the electrical stunner needed to be turned off and that live birds needed to be addressed as a priority over fixing the line." [Record does not note how many birds drowned as a result of the incident.]
P208	George's Processing Inc.	10/30/2020	XKC3215105630G	Inspector observed that the live hang belt was not operating and approximately 200-300 dead chickens were located near the entrance to the dumping area on the belt. Inspector was informed that "when the live hang belt had stopped working the dump station operator continued to dump chickens onto the belt, causing live birds to pile up on top of each other. The dead chickens appeared to have died by smothering as a result of this pile up…. I immediately verbally rejected the Kill Line #1 live hang belt to stop the process of transferring chickens between belts."
P1243	Perdue Foods LLC	10/29/2020	XLB5310102529G	During a power outage, inspector walked to kill room to see how long it would take workers to address the live birds in the stunner. The birds were left submerged in the stunner for 5 and ½ minutes before the line restarted. A similar incident occurred later in the shift. [Record does not note how many birds drowned in the water stunner.]
P6137	Foster Farms	10/15/2020	BXL1708104123N	Multiple cadavers were observed on consecutive days. "Due to the observation of cadavers on three different days and the inability to maintain effectiveness of the corrective actions, I notified [redacted] that I would be documenting a noncompliance."
P522	Sanderson Farms Inc.	10/12/2020	IKB0616101312G	Inspector was informed that "the process was out of control at the live rehang area." Inspector entered the area and found a worker aggressively

				throwing a large number of birds from the floor onto the conveyor belt "which could cause injury to the birds."
P45910	Sanderson Farms Inc.	10/12/2020	GRI5520104912N	Inspector observed a large pile of feathers, dander, and debris piled up from the floor to the top of the live hang belt. Numerous DOAs and at least one live bird were discovered within the pile. "I could not determine if the birds were DOAs or were alive [when they entered the plant] and died due to suffocation from the large pile of feathers." Noncompliance Record was issued.
P4602A	New Market Poultry LLC	9/17/2020	YCG2512091017G	Inspector noted that 6 cadaver birds had been condemned in one day. "This memorandum serves as notice that continued failure to maintain and prevent a decline in the control of the slaughter process, particularly when correlating with the production of cadaver birds, may be documented in a Noncompliance Record."
P165H	OK Foods Inc.	9/15/2020	DAF5207095415G	Inspector observed a worker who was repeatedly hanging live chickens using excessive force to place the birds in the metal shackles. "After observing this same forceful technique used several times, I immediately proceeded to the cage dumper and motioned for the operator to cease dumping cages of live birds onto the transfer belt. Reject tag was attached to the dumper."
P4563A	Agri Star Meat & Poultry LLC	9/9/2020	HRJ0017090609G	Inspector observed a large number of DOAs during a period of cool temperatures and rain. DOAs were arriving on the kill belt at such a high rate that they were piled on the floor in the kill room at 3 different times during the shift. "With so many birds coming in dead, agonal but conscious/alive birds were being removed along with deads and thrown to the floor…. I went and observed the dumper and noted that at times the dumper belt would be running when the kill belt was not. When I relayed this to [redacted] he said that the two belts are supposed to be in sync to prevent this and that he would notify maintenance of the issue."
P44826	Case Farms Processing Inc.	9/9/2020	JOD1215091809G	Inspector observed a large number (approximately 30) bright red bird carcasses on the salvage floor. Heads were intact; some carcasses had no visible cuts to the neck; other carcasses had cuts that were improperly placed. Line speed was slowed until the slaughter process was "back in control."
P47016	The Best Dressed Chicken Inc.	8/28/2020	OFG3511082231N	Inspector observed a large number of cadaver birds. "The establishment is not preventing live birds from entering the scalder. On 8/27/2020, 152

				cadavers were pulled off the line and regulatory control of the line was taken twice."
P15724	Case Farms Processing Inc.	8/27/2020	EVC5905081727G	Inspector observed that the automatic kill machine was not functioning properly, and the back-up cutter was unable to keep up with the volume of birds. The line was stopped, and [redacted] was "advised the kill machine was not working and production could not resume under the previously described condition as there were numerous birds that had not been bled out on the bleed chain."
P47016	The Best Dressed Chicken Inc.	8/27/2020	OFG4315084127G	Inspector observed 15 cadavers on the line at the inspection station. "I took regulatory control of the line and requested that the line be slowed until the process was under control." Problems continued. "In the first hour of operation, I condemned 152 cadavers and had to take regulatory control of the line twice."
P165S	OK Foods Inc.	8/25/2020	LWA5620083625G	Inspector observed a live bird underneath a couple of dead birds in the condemn barrel. "This MOI is linked to NR #LWA460081021 for a similar failure in process control."
P1284	Pilgrim's Pride Corporation	8/20/2020	GDA1510080720G	After becoming aware that a picking line was not operating, inspector timed how long it took workers to remove the birds from the water stunner. Eventually 10 dead birds were removed from the stunner. "The birds were wet, had not been euthanized, and had drowned inside the stunner."
P579	Jennie-O Turkey Store LLC	8/20/2020	UIO5808082620G	Inspector observed that approximately every fifth bird hanging on the live hang belt had injuries of varying severity affecting the backs and breasts of the birds. A DOA tank was completely full with turkey carcasses showing wounds that were moist and had a large amount of blood on the surrounding feathers consistent with recent injury. "Clogs of birds in the conveyor system has been a rare but ongoing issue at P579."
P584	Pilgrim's Pride Corporation	8/20/2020	QLM2222082520G	Inspector observed live hang personnel mishandling live birds. Live hang personnel were throwing live birds forcefully at the shackles instead of carefully placing their legs into the shackles. "I took immediate action and stopped the picking line and notified [redacted]."
P165S	OK Foods Inc.	8/20/2020	LWA4600081021N	Inspector observed 5 chickens, one of which was dead, underneath the conveyor belts. "By allowing a bird to die underneath the cage belts means

				it was allowed to die by a method other than humane slaughter." Noncompliance Record was issued.
P1015	Poultry Holdings LLC	8/19/2020	ARE4606082919G	Inspector observed a significant number of chickens smothered to death due to the excessive amount of birds being dumped on the belt. At one section of the belt, the chickens were piled on top of each other at least two feet deep. Inspector observed at least 100 birds in the space of 10 minutes, who appeared to have been smothered to death, being placed onto the DOA belt. "I immediately informed the live hang supervisor that no more birds were to be dumped onto the belt until the belt was cleared."
P1015	Poultry Holdings Inc.	8/18/2020	ARE5703085119N	Inspector observed a significant number of chickens smothered to death due to the excessive amount of birds being dumped onto the belt. "I counted at least 100 birds in the space of ten minutes being placed onto the DOA belt which all appeared to have been smothered to death…. I immediately informed the live room supervisor that no more birds were to be dumped onto the belt until the belt was cleared." Noncompliance Record was issued.
P6137	Foster Farms	8/14/2020	BXL1707085817N	Inspector observed several cadavers during the shift. "There were three instances that resulted in clusters of poultry dying by other means than slaughter, even after corrective action was taken by the establishment." Noncompliance Record was issued.
P215	Butterfield Food Company	8/13/2020	GXN4912082213G	Inspector noted that trailers holding live birds had been parked in the sun outside the holding shed for an extended period. A total of nearly 10,000 dead birds were reported on 3 trailers. These birds died other than by slaughter.
P551	Jennie-O Turkey Store LLC	8/10/2020	WJL0512081810G	Inspector observed at least 18 cadavers during the shift. "Many of the birds had no neck cut at all, some had partial cuts or a miscut to the neck. The carcasses had enlarged swollen heads and necks, with heads, necks, and shoulders that were dark red in color, consistent with cadavers."
P5787	Pilgrim's Pride Corporation	8/7/2020	DEB3114081607N	Inspector observed several live, breathing birds entering the scald tank. Their necks had no evidence of being cut. "Since birds were repeatedly being put into the scalding tank while they were still breathing, the birds are dying other than by slaughter, they are adulterated, and the establishment's system is out of control."

P1243	Perdue Foods LLC	8/5/2020	XLB3410083705G	Inspector observed birds regaining consciousness after exiting the stun machine during a time when the line was down. Inspector started a timer on his watch "to ensure establishment employees would arrive to follow establishment procedure." Eleven minutes and 30 seconds passed before a worker finally opened the drain cover to allow the water to drain from the stun machine. [Record does not mention how many – if any – birds drowned in the stunner while the line was stopped.]
P13456	Tyson Foods Inc.	7/31/2020	BQB3408073331G	Inspector observed overcrowding of birds on the belt in the live hang area. The overcrowding caused birds to be pushed on top of each other and over the sides of the conveyor belt onto the floor. "I notified supervisor [redacted] who turned the line speed down to correct the overcrowding on the line."
P2686	Equity Group, Georgia Division LLC	7/20/2020	KBA0513074620G	Inspector observed a massive number (66) of carcasses scattered and piled up on the floor and being stepped on by the workers. Four containers were also observed to be full of carcasses, which were spilling over unto the floor. Five live birds were pulled from underneath carcasses.
P533	FreeBird Chicken	7/16/2020	AKB3207070616G	Inspector observed multiple cadavers during a short period. After discussing with inspector, plant management decided to stop the slaughter line to identify the cause.
P44947	Two Brothers for Wholesale Chicken Inc.	7/7/2020	TRR5712071908N	Inspector observed workers throwing carcasses into a barrel designated for carcass transfer from cutting to scalding. One carcass was noted to be a live bird. "Slaughter personnel were immediately instructed to halt all slaughter activities until management notification and process control could be properly addressed by management."
P10038	Scotts Hook & Cleaver Inc.	7/6/2020	RSH4710072108N	Inspector observed a large number of deceased birds on two trailers parked outside the plant (temperature 90 degrees). "I immediately informed plant management, but the rough estimate was around 150 dead chickens between the two trailers…. The final number of dead chickens prior to slaughter was 199." Noncompliance Record was issued.
P15724	Case Farms of Ohio	6/19/2020	EVC4005060324N	During a period when the plant was not operating, inspector observed two trailers parked outside with no fans or misters on to keep the birds cool. The birds were observed to be showing signs of heat stress as evidenced by panting, sitting with their wings out from the body, and try to move themselves to the wire mesh edges to access air. "This observation represents a failure on the part of establishment P15724 to take adequate

				measures to protect the birds from the heat and handle them in accordance with good commercial practices and is thus noncompliant with 9CFR381.65(b)."
P579	Jennie-O Turkey Store LLC	5/30/2020	UIO3412055130G	Inspector observed birds falling from a truck onto the ground. Birds also seen falling into an uncovered drain. Inspector also observed workers manually pulling and pushing birds to resolve a clog on the conveyor belt. Other workers were continuing to unload birds onto the conveyor belt despite the clog. After the clog was resolved, inspector observed workers placing birds that had died from asphyxiation in the clog back into the system. "I informed [redacted] that dead birds from the clog are not eligible for slaughter and should not be added back into the conveyor to run through the system as they died from causes other than slaughter." At least 35 birds were condemned as a result of the clog incident.
P727	Simmons Prepared Foods Inc.	5/27/2020	VCF4304050527N	Inspector observed that 7 birds had been condemned due to drowning in the scald tank. "I allowed [redacted] to clear the scalders but not to hang any more birds until he found out the cause and how they are going to prevent it."
P27	Tyson Foods Inc.	5/21/2020	JYK5221052521G	Inspector observed a live bird buried under carcasses in the DOA tank on two occasions one day apart. "Given that no incidents had occurred in the past two years, having two occur within the same week is concerning and indicates a loss of process control."
P18860	Sing Wah Live Poultry Market Inc.	5/19/2020	XPD2409055819G	Inspector observed a worker placing approximately 10 young chickens that were still breathing and flapping their wings into the scalder. "I stopped the line and noted that the bleed out process was incomplete and ineffective."
P1209	Whitewater Processing Inc.	5/8/2020	FFG1408051008G	Inspector observed multiple turkey hens breathing and raising their heads just before the scald tank. The line was stopped and restarted multiple times. Inspector noted that this was a reoccurring problem. "There had been an extended period where there were no occurrences but today was terrible."
P17766	Southern Hens Inc.	4/28/2020	SSN4512042128N	Inspector observed 3 live birds going into the scalder. "This is a noncompliance based on the observation of multiple live birds entering the scalder while conscious, with the described loss of process control."

P27389	Pitman Farms Inc.	4/24/2020	NCO0212044524N	Inspector observed that a worker who was hanging chickens was unable to prevent birds from flying out of the baskets. Some of the loose birds were entering the washing solution and drowning, while others were riding on top of the baskets and getting drenched when going through the "return basket washer." "I pointed out that another chicken was stuck inside the return washer…. This chicken was mangled from being stuck between the machinery mechanisms."
P1009	Wayne Farms LLC	3/21/2020	DSM3909032221G	Inspector observed birds piled up on the live hang belt 3 layers deep, and on the floor and against the wall, there was a pile of DOAs spanning the length of the wall. "While inspecting the pile of DOAs I observed 3 live birds underneath multiple DOAs."
P46374	Sanderson Farms Inc.	3/20/2020	AQI4521034020N	Inspector observed 5 live birds in or near a pile of carcasses on the floor. "The aforementioned observation demonstrates a regulatory noncompliance."
P579	Jennie-O Turkey Store LLC	3/3/2020	UIO3608032903G	Inspector observed a major clog (40-50 birds) on the conveyor belt in the unloading area. Employees removed both unconscious and conscious birds by yanking them aggressively. "The injured birds had visible acute injuries that ranged from minor scrapes and abrasions to severe injuries that included leg fractures, lacerations and significant mutilation of both muscle tissue and skin."
P45910	Sanderson Farms Inc.	2/24/2020	GRI2107023024N	Inspector took a regulatory control action after observing 5 birds entering the scald tank. In addition, too many to count birds after the back-up killer showed what appeared to be a lot of involuntary muscle movement. A similar incident occurred later in the day. Noncompliance Record was issued.
P6519B	Coastal Processing Inc.	1/31/2020	AGJ2310013331G	Inspector observed a pile of 25-35 carcasses on the floor. Inspector took a regulatory control action after discovering a live bird in the pile.
P2186	George's Foods LLC	1/31/2020	YJO5515013831N	Inspector observed a trend of birds dying other than by slaughter. During a 2-minute check, 10 birds were not stunned, 7 birds missed the kill blade, and at least 1 bird was missed by the back-up cutter. Two subsequent checks showed similar results. In addition, a large numbers of cadavers were observed. "Despite consistent intervention, observation, and corrective actions by the establishment, birds continued to die by means other than slaughter throughout the night, leading me to conclude the establishment had lost control of the process."

P65198	Coastal Processing LLC	1/29/2020	AGJ3809015829G	Inspector noted that the plant's offal drainage system was completely submerged in water, which delayed slaughter. As a result, more than 25,000 birds were held over to Monday (more than 48 hours) without food. [Record did not note the DOA rate for the lot of birds affected by this incident.]
P47016	The Best Dressed Chicken Inc.	1/27/2020	OFG4208010827G	Inspector took a regulatory control action after observing approximately 20 cadavers at the inspection stand. "These cadavers were bright in color and had their heads and necks still attached with no identifiable incision marks on the necks."
P146	Tyson Foods Inc.	1/22/2020	EJJ5420012522N	Inspector observed line #1 was not in operation and 17 birds were not breathing and deceased with their heads submerged in the water of the stunner. "The cause of death was by means other than slaughter." Noncompliance Record was issued.
P4734	New Lee's Live Poultry Market Inc.	1/20/2020	XKD5605011320N	Inspector observed workers putting birds immediately into a barrel after the knife cut instead of into the bleeding cones. "Retain tag was placed on the barrel … [and] the 13 birds inside the barrel were condemned."
P7769	Farbest Foods Inc.	1/20/2020	EDF3820011220N	Inspector was informed that the CO2 stunner had malfunctioned, and live birds were being dumped onto the hanging belt. A large number of birds were falling from the belt onto the floor. Workers had also stacked cages of live birds. "This incident represents a loss of process control due to the large number of live birds involved and several establishment employees intentionally stacking live birds on top of one another resulting in the suffocation deaths of multiple turkeys."
P165H	OK Foods Inc.	1/17/2020	DAF4708013717G	Inspector noted that load of chickens were held on site without food or water for approximately 37 hours. [Record does not note the DOA rate for the lot of birds affected by this incident.]
P935	Allen Harim Foods LLC	1/17/2020	YXA5922014417G	Inspector observed a DOA pile on the table so high that the carcasses were touching the DOA belt 2½-3 feet above the table. Two live birds were found among the carcasses. Two more live birds were found in a 2-foot pile of feces, feathers and DOAs on the floor. Inspector noted that the DOA belt was broken for 2 days before it was repaired.
P5787	Pilgrim's Pride Corporation	12/25/2019	DEB1804120626N	Inspector observed an employee pull the head off a conscious bird without using a knife. Noncompliance Record was issued.

P6519B	Coastal Processing LLC	12/12/2019	AGJ3513125612G	Inspector observed 8 live, weak birds comingled with and being smothered by a pile of 25-35 carcasses on the floor in the live hang operation. Inspector also observed a live bird enter the scalder, and they pulled 8 cadavers from the condemn container that had either no cut or a superficial cut on their neck, indicating that the birds entered the scalder alive.
P7485	Wayne Farms LLC	12/9/2019	QBM2415122509G	Inspector observed numerous incidents involving bird mistreatment: employee kicked a bird to remove them from his foot stand; employee attempted to hang a very small bird onto a shackle twice and both times the bird fell 3 feet from the shackle headfirst onto the concrete floor; 2 additional very small birds were found at the end of a conveyor belt buried under a pile of manure, feathers, and other birds; employee attempted to use scissors to cut the neck and remove the head of a live, conscious bird; 30 birds were found in the picking room, some were cold, wet and agonal or in pools of bloody water.
P687	House of Raeford	12/4/2019	XRA1117123804N	Inspector described an incident involving a cage dump operator that resulted in large piles of birds backed up on a conveyor belt, some of which were falling off the conveyor belt onto the cement floor 8-plus feet below. The incident led to 15+ full barrels of dead chickens. Noncompliance Record was issued.
P19688	Sanderson Farms, Inc.	12/2/2019	KJA4718123609G	Inspector observed a live bird on the kill line without an incision on their neck that would have entered the scald tank alive absent intervention. “CSI took regulatory control action by stopping the affected line and notifying Establishment Management of the situation.”
P517	Mar-Jac Poultry-MS	11/26/2019	QOO1604113629N	Inspector observed 3 live birds enter the scald tank because the back-up killers could not keep up with the amount of birds missed by the kill machine. “CSI Manuel observed a systemic failure in the picking room, which resulted in an out-of-control process…Regulatory control was taken by instructing management to stop hanging on the back dock for the affected line.”
P6164A	Foster Farms	11/25/2019	OIJ0420111625G	Inspector observed a bird hanging by one leg and a live bird fully alert on the kill line about to enter the scald tank. Inspector took a regulatory control action (RCA) to stop the line and remove the live bird from the line.

P165H	OK Foods Inc.	11/19/2019	DAF1310113319G	Inspector observed an employee using excessive force to place birds in shackles. “The force being applied was such that I was easily able to hear the metal shackles banging loudly against the metal guide bar as the employee used a rapid downward motion to force the birds into the shackles. After observing this same forceful technique used several times, I immediately proceeded to the cage dumper and motioned for the operator to cease dumping cases of live birds onto the transfer conveyor. US reject tag B-45009716 was attached to the dumper.”
P32120	Dakota Provisions LLC	11/15/2019	JEB4611115015G	Inspector observed a bird on the line arching his neck and trying to escape the shackles. “I notified [redacted] of the conscious bird about to enter the scalder and had the line immediately stopped.”
P687	House of Raeford	11/12/2019	XRA3811115912G	Within 2 days, inspector observed 4 cadavers that indicated the birds entered the scald tank alive. “The findings on both days indicate a possible problem with the establishment's system of ensuring chickens are not entering the scald tank alive.”
P6505	Norman W. Fries Inc.	11/8/2019	BBBA1015113808N	Inspector observed 3 full barrels of cadavers that indicated the birds entered the scald tank alive. The number of cadavers was too numerous to count, but was estimated to be over 300. Previous MOIs were issued on 7/25/19 & 9/19/19 for the same problem. “[Redacted] tagged them with USDA Tag number B38137008.”
P6137	Foster Farms	11/7/2019	BXL1704115407N	Inspector observed nearly 100 cadavers throughout the day that indicated live birds entered the scald tank. “I notified [redacted] that I was taking a Regulatory Control Action and he was to stop shackling on Line 2 until I received written corrective actions for the cluster of cadavers I was observing. I notified [redacted] that I would be documenting a noncompliance for the cluster of cadavers, loss of process control and ineffective measures being taken to mitigate the circumstances of auto kill machine malfunctions.”
P6137	Foster Farms	11/7/2019	BXL1705113507N	Inspector observed 14 cadavers during the night shift that indicated live birds entered the scald tank. Incident documented as a noncompliance connected to the above record (NR BXL1704115407N-1).
P6137	Foster Farms	11/7/2019	BXL4205112507N	Inspector observed numerous cadavers that indicated live birds entered the scald tank. Incident documented as a noncompliance connected to the above record (NR BXL1705113507N-1 and NR BXL1704115407N-1).

P6137	Foster Farms	11/5/2019	BXL3517110105N	Inspector observed 20 cadavers during the day shift that indicated live birds entered the scald tank. Incident documented as a noncompliance connected to the above record (NR BXL1705113507N).
P935	Allen Harim Foods LLC.	11/5/2019	YXA4721114005G	Throughout the day, inspector observed at least 10 cadavers that indicated the birds entered the scalder alive. Inspector took a regulatory control action to implement corrective measures. "I took regulatory control by application of U.S. Retain Tag# B21230480 to line 3 dumping station."
P5787	Pilgrim's Pride Corporation	10/31/2019	DEB5809111101N	Inspector observed at least 200 birds lying on the floor of the live hang area, the majority of whom were dead on arrival birds (DOAs). Inspector counted at least 20 birds in the pile that were still alive though moribund being buried and smothered among the DOAs. "I notified the [redacted] to stop hanging the birds until this pile could be properly sorted and any live birds removed."
P6529	Koch Foods of Alabama	10/29/2019	AVI5111104129G	Inspector observed two large piles of dead on arrival (DOA) birds 1-2 feet high that prevented walking or inspecting birds on the kill line. "I immediately ordered live hangers to stop hanging birds and to begin clearing the floors of DOAs…While employees were clearing the floor, I saw 3 live birds pulled out from the pile of DOAs."
P20322	Equity Group Eufaula Div. LLC	10/14/2019	ATF2923101214G	Inspector observed a pile of birds about 10 feet high. A conservative estimate of birds involved would be 100 alive and over 700 dead. Inspector assumed the buried birds died of suffocation.
P646	JCG Foods of Georgie LLC	9/20/2019	XAA2917092020G	Inspector observed a large pile of birds, at least 3 to 4 birds high, on the live hang belt while employees were on break. After clearing the pile there were at least ~50 dead birds; "it Is reasonable to conclude that the birds had suffocated in the pile."
P325	Tyson Foods Inc.	9/20/2019	YDM5822093920N	Inspector observed at least 27 birds that had entered the scald tank alive. "It was determined that all the birds with intact heads and necks entered the evisceration floor and therefore entered the scalding vat still breathing (cadavers), which represents an out of control process that results in adulterated product." Noncompliance Record was issued.
P1480	Tip Top Poultry Inc.	9/19/2019	JBA5720091019G	Inspector observed 20 loose birds roaming around the yard/loading dock area near trailers and sheds; one bird appeared to have been run over. In the live hang area, the inspector observed approximately 200 birds (about 5 feet high) piled on top of each other and another 200 birds loose and

				moving around. As the employees cleared the pile there were both live birds and dead birds amongst them and at least 20 birds were smothered to death. “I notified [redacted] who was on the line hanging birds that I was taking regulatory control because I did not notice anyone taking control of the process and clearly the ‘process was out of control’. I took regulatory control of the line speed because the process was clearly out of control.”
P46091	Ozark Mountain Poultry Inc.	9/15/2019	FAA0221094315G	On 3 different days and throughout numerous shifts, an inspector observed at least 20 chickens that had been mutilated by equipment, including torn up and ripped off legs and mutilated necks and chests. “Despite the establishment’s assurance on at least 3 prior occasions that their equipment on line 1 had been thoroughly checked…the mutilation of birds continued, the cause of which was ultimately determined to be equipment that was in poor repair.”
P18860	Sing Wah Live Poultry Mkt Inc.	9/12/2019	XPD4711094712N	Inspector observed an employee about to put 4 birds into the scalder that were still alive and moving. Noncompliance Record was issued.
P509	Koch Foods LLC	9/11/2019	IPG5222095911N	Inspector observed back up cutters making too many follow-up cuts as the birds were being repeatedly missed by the automatic knife. “IPP observed one bird around 11:45pm that had been missed by automatic and backup cutters and stopped the line, so a backup cut could be made. I took control of the line and had the speed reduced.” Noncompliance Record was issued.
P7089	Tyson Foods Inc.	9/9/2019	FHB4922095310N	Inspector observed multiple birds that had entered the scald tank alive because the back-up killer was unable to keep up with the birds missed by the automatic cutter. Line speed was running faster than usual. “I noticed an ongoing loss of process control as evidenced by observing two more cadaver carcasses without cuts to their neck.” Noncompliance Record was issued.
P6164A	Foster Farms	9/6/2019	OIJ5820092506G	Inspector observed multiple birds that had entered the scald tank alive. “I communicated this to Mr. Avalos and applied U.S. Retain tag #B45141985 to both carcasses explaining my intent to maintain control of the product until necessary plant management and I finish reviewing evidence and I verify condemnation.”

P1049	Pitman Farms Inc. (Moroni Turkey Processing)	9/4/2019	MMK1615094604G	Inspector observed two trailers staged at the live receiving unloading dock with cages that were overcrowded with approximately 90% of the birds displaying signs of heat stress by open mouth breathing/panting. "The trailers did not have any fans, misters or any source of ventilation for the birds as required per the establishment's written Standard Operating Procedures." [Record does not note the DOA rate for this lot of birds.]
P1049	Pitman Farms Inc. (Moroni Turkey Processing)	8/29/2019	MMK2216083229N	Inspector observed multiple live birds enter the scald tank. "At approximately 1044 hours [redacted] was notified of a loss of process control and asked to stop hanging until corrective action could be proffered." Noncompliance Record was issued.
P6164A	Foster Farms	8/26/2019	OIJ2021083226G	Inspector observed an injured bird being pinched between a heavy steel module and a steel louver. Instead of removing the bird, the dump operator left the bird struggling and attempted to move another module into place. "I took the regulatory control action of directing the operator to briefly cease operation until the bird could be removed; however, the operator stopped operating the equipment after moving the next module fully into place, thereby re-trapping the bird."
P44947	Two Brothers for Wholesale Chicken Inc.	8/23/2019	TRR2010085623N	Inspector observed 3 young chickens in a DOA barrel that were still moving and not fully bled out. "Retain tag #B42078637 was placed on the barrel." Noncompliance Record was issued.
P51302	Belmont Meats LLC	8/21/2019	YAY1212083421G	Inspector observed chickens falling out of their shackles onto the cement floor; 10 chickens were on the floor still conscious and bleeding. "I immediately took regulatory control action and stopped operations."
P1250	Fieldale Farms Corporation	8/21/2019	OAA5619083712G	Inspector observed two large piles of dead birds in the live hang area, both containing 150-200 birds. As employees began clearing the piles several live birds were found that would have otherwise suffocated. "I informed [redacted] that they must stop hanging on Line #2."
P218	Pilgrim's Pride Corporation	8/19/2019	WOD3113085219G	Inspector observed several live birds (including one that was covered in blood) in areas they shouldn't have been, including a shallow drain; the bird in the drain appeared to have drowned. Inspector also observed numerous birds that entered the scald tank alive due to missed or insufficient cuts to their neck from the kill line; employees made no attempt to notify management of the issue. "I notified [redacted] of my

				concerns and asked him to take measures to regain control of his Live Hang and Picker Room departments."
P5787	Pilgrim's Pride Corporation	8/9/2019	DEB1104081009N	Inspector observed the back-up killer pull the head off a fully conscious bird while attempting to cut its neck. Noncompliance Record was issued.
P244	Plainville Brands LLC	8/3/2019	GCN2305080203G	1,225 turkeys were found dead in trucks "due to failure to protect birds from extreme heat." The turkeys were held in the trucks overnight and temperatures reached 92 degrees Fahrenheit the following day.
P51179	Sanderson Farms Inc.	7/30/2019	RQE4017072503G	Inspector observed an unloading belt that was moving faster than the live hang belt resulting in 2-3 piles of young birds being piled on top of each other. "Piling up is worse at the corner where live young chickens are crammed by the diverter ... which obviously results to grave discomfort for the first and second pile of young chickens." Plant management didn't see this as an issue: "I talked with Plant Manager Stedman who said piling up of young chickens on live hang belt is normal in all plants… He believes there is nothing wrong with young chickens piling on top of each other."[Record does not note how many – if any – birds died due to suffocation.]
P34668	Simply Essentials Poultry LLC	7/25/2019	SFJ3815075525G	Inspector documented 5,997 dead on arrival (DOA) birds. The reason for such high mortality was not indicated, but the inspector noted the temperature was in the 90s with high humidity.
P579	Jennie-O Turkey Store LLC	7/25/2019	UIO1018074525G	A clog of turkeys in the CO2 system resulted in the mutilation of 10 turkeys. Similar incidents occurred on 7/9/2019 and 6/18/2019 that resulted in injuries to turkeys.
P5787	Pilgrim's Pride Corporation	7/22/2019	DEB2122071322N	Inspector observed 14 breathing birds enter the scalder within a one-minute window then another 3 birds within a matter of 10 seconds. Noncompliance Record was issued.
P579	Jennie-O Turkey Store LLC	7/19/2019	UIO3821074919G	Inspector observed abnormally high numbers of DOA turkeys (5.9% DOA and 6.5% DOA for a total of 793 birds). Temperatures that day reached 95 degrees Fahrenheit and the heat index reached at least as high as 112 degrees Fahrenheit.
P1243	Perdue Foods LLC	7/17/2019	XLB1613070117N	Inspector observed two large piles of birds, one 2.5 feet by 2 feet high and another 3 feet by 3 feet, containing both dead birds and live birds left to suffocate as no employees were around. A conveyor belt was continuing to dump more birds onto one of the piles. Inspector also observed about 15

				dead and live birds in the drain and about 40 loose birds walking around under the live hang platform. “I took regulatory control of the live hang area by stopping the further movement of birds.” Noncompliance Record was issued.
P4602A	New Market Poultry LLC	7/9/2019	YCG5210075609N	Inspector observed multiple birds that had entered the scald tank alive. Noncompliance Record was issued.
P1235	Wayne Farms LLC	6/27/2019	GKN5408064827G	During inspector’s observation, 50% of birds were not properly stunned and a backup killer had to slit the neck of more than 20 birds in less than 3 minutes. Additionally, inspector had to intervene as a bird was about to enter the scald tank alive. “I immediately stopped the picking line to prevent the bird from entering the scald vat and drowning.”
P551	Jennie-O Turkey Store LLC	6/24/2019	WJL5414063024G	A turkey was caught between a truck hoist that unloaded live turkeys from trucks and a wall, tearing the turkey open and leaving their intestines hanging out. A similar incident occurred two months earlier (MOI WJL5815045904G) when a turkey was torn in half after getting caught between a truck hoist and a wall.
P206	Pilgrim’s Pride Corporation	6/18/2019	KCC4820064618G	Inspector observed a dead bird whose legs had been ripped off by equipment laying on the ground. “I immediately informed [redacted] to stop hanging birds so as to prevent any more birds from dying before slaughter.” This is the second incident since March in which a bird was similarly pulled apart by equipment.
P764	Perdue Foods LLC	6/14/2019	CUA2308061314G	Inspector observed a large pile up of 400-500 small birds in the live hang area; live birds were piling on top of dead and non-ambulatory disabled birds, increasing the risk of birds suffocating. “Birds kept coming from the live hang conveyors, so I took regulatory control of the live hang department by tagging the room with U.S. Rejected tag number B-45337992 after informing [redacted] that I was doing so and the reason… The process was out of control during this incident and was not acceptable.”
P325	Tyson Foods Inc.	6/13/2019	YDM2821060713G	Inspector observed 10 live birds loose on the floor in the Live Hang department; two live birds were found in the DOA bin mixed in with dead birds, and a live bird was found wet and huddled underneath the stunner. Employees failed to take action to address the situation. “[Redacted] took regulatory control action and stopped the live hang lines.”

P325	Tyson Foods Inc.	6/5/2019	YDM0723060705G	Inspector intervened after a live bird was found in a DOA bin under 3 layers of dead birds. "[Redacted] took regulatory control and stopped live hang from hanging any birds until the barrel was cleared of any further live birds."
P622	Tyson Foods Inc.	6/5/2019	NLB3313062505G	Birds were being continuously dumped on top of each other onto a conveyor belt while the lines that brought the birds through the slaughter process were shut down; this resulted in a huge pile up of birds, many of which died from suffocation. Plant personnel failed to follow their written Action Plan for this sort of situation which further exacerbated the problem.
P208	George's Processing Inc.	6/4/2019	XIC1113062604G	Belt malfunction led to a large pile up of birds; at least 1 and as many as 40 birds suffocated to death in the pile as a result.
P935	Allen Harim Foods LLC	6/3/2019	YXA5714064403G	Inspector observed a plant employee kick a bird multiple times to get the bird to move onto a conveyor belt 2 feet below.
P6137	Foster Farms	5/31/2019	BXL3118051331N	Inspector had to stop the kill line and employees were instructed to stop hanging birds after numerous birds entered the scald tank alive. However, these instructions were ignored, and birds continued to enter the scald tank alive. Inspector stopped the line for a second time until corrective actions were taken. "I notified [redacted] to tag live hang to ensure no more birds could be hung and requested that he notify supervision that they are not allowed to hang until corrective actions are provided in writing." Noncompliance Record was issued.
P45939	Petersburg Poultry Processing	5/23/2019	CZJ3209054623G	83 birds died from being held and exposed to rain and inclement weather in uncovered crates overnight.
P476	Pilgrim's Pride Corporation	5/22/2019	ODA2723052022G	Inspector observed 35 birds that had entered the scald tank alive and died by other than slaughter as a result of an issue with the stunner. There was no water in the stunner, so birds were missing the kill blade and the backup killer had to attempt to kill each bird by hand.
P165H	OK Foods Inc.	5/21/2019	DAF5304055821G	Inspector observed birds getting caught in the gears of moving belts, ripping into their abdomens, crushing their rib cages, and partially amputating their legs. At no point did any of the ~15 employees present stop the line to prevent birds from continuing to get caught in the gears. Over 20 birds were eviscerated, mangled and severely injured. "I

				immediately took regulatory control and had the belts stopped. I placed US Reject Tag No. B-45141447 to the emergency stop lines."
P522	Sanderson Farms Inc. (Processing Div.)	5/20/2019	IKB5006052320G	28 conscious birds drowned on the picking line due to an issue with the stunner. Additionally, inspector observed 8 birds that had entered the scald tank alive.
P579	Jennie-O Turkey Store LLC	5/16/2019	UIO1004054616G	A trailer full of turkeys tipped over causing traumatic injuries to many birds. Many birds also died from suffocation as the birds were trapped on top of each other. Inspector estimates that most, if not all the 567 birds that were condemned during that shift were killed or euthanized due to this incident.
P1241	Tyson Foods Inc.	5/9/2019	MGJ310705090N	Inspector observed 7 or 8 chickens that had entered the scald tank alive and another 3 live, breathing chickens that would have entered the scald tank alive had they not stopped the line. "The chickens would have entered the scalder had [redacted] not taken regulatory control action. [redacted] discussed the establishment's failure to maintain good commercial practices with [redacted]." Noncompliance Record was issued.
P713	Gentry's Poultry Co. Inc.	5/7/2019	HDA2008051307G	Inspector observed multiple birds enter the scald tank alive. "This is a repetitive issue that the establishment has been notified about on multiple occasions. Corrective actions have failed to be effective in preventing live chickens from entering into the scald tank."
P1307	Mar-Jac Poultry-AL	5/3/2019	KIL3013052007N	Inspector observed numerous chickens enter the scald tank alive. "I concluded that the establishment's process was out of control. I immediately went to the live hang room, and took regulatory control action by instructing the employees to stop hanging chickens on line 2." Noncompliance Record was issued.
P890	Peco Foods Inc.	4/20/2019	CYD2903040830G	A trailer full of birds tipped over resulting in the death of 2,969 birds.
P522	Sanderson Farms Inc (Processing Div.)	4/26/2019	IKB5805044326G	54 conscious birds drowned on the picking line due to an issue with the stunner.
P713	Gentry's Poultry Co., Inc.	4/24/2019	HDA3615043424G	Inspector observed multiple birds enter the scald tank alive. "Looking back at post-mortem condemned records over the last two weeks, there have been cadavers reported on 8 of the last 11 days. One of the days, April 11th, there were 22 carcasses condemned by inspection as cadavers. This

				indicates a possible problem with the establishment's overall system of ensuring chickens are not entering into the scald tank alive."
P6504	Peco Foods Inc.	4/17/2019	CHK2102040917G	Inspector observed a high density of birds on the live hang belt that was too much for the hangers to handle; this resulted in mistreatment of birds including piling and suffocation, as well as birds being thrown by an employee in an attempt to keep them moving.
P1234	Mountaire Farms Inc.	4/16/2019	QUI2320043116G	Inspector observed employees throwing several birds by the leg from one side of a table to another in violation of the plant's Animal Welfare Program. Regulatory control action was taken: "I immediately stopped the line and asked for a supervisor."
P544	Jennie-O Turkey Store LLC	4/16/2019	IYW4505043216G	Inspector observed numerous trailers in which birds were severely overcrowded, stacked two to four layers on top of each other. One trailer had bloody ledges and blood-splattered birds, but the injuries couldn't be identified due to the crowding/stacking of the birds. Inspector also observed one live bird whose leg had been amputated. 77 birds from the trailers with these issues were DOAs.
P165H	OK Foods Inc.	4/16/2019	DAF4912044116G	Birds were left in trailers without food or water for up to 25 hours. [Record does not note the DOA rate for this lot of birds.]
P806	Tyson Foods Inc.	4/11/2019	OGC2421045811G	Inspector observed several live, breathing birds buried within a pile of ~40 DOA birds 3 to 4 layers high in the live hang area. Inspector also observed ~10 loose birds in the same area; no employees were around to address the situation. "At this point I took action to stop the plant from dumping any more cages of live birds onto the hanging belt."
P165S	OK Foods Inc.	4/9/2019	LWA3020045109G	Due to lack of capacity in the Live-Haul shed, 7 trailers filled with birds were left out in the open yard during 85-degree weather. Misters were not functioning and only 2 trailers had access to a single fan. This resulted in a significant number of DOAs to the point where employees could not keep up with processing them, causing large pile ups.
P45912	Midwest Poultry Processing LLC	4/9/2019	GLL0809041409G	Inspector observed approximately 200 DOA carcasses in the top layer of crates that had been covered with a black tarp during transport on a flatbed trailer. It appeared the birds died from heat exhaustion during their extended time under the tarp.
P579	Jennie-O Turkey Store LLC	3/22/2019	UIO5018030322G	Inspector observed 10 turkeys with extensive injuries including exposed and mutilated muscle tissue, exposed bones, peeled off skin, and a

				mutilated neck and esophagus. Injuries were sustained due to a clog of turkeys in the CO2 stunning system.
P325	Tyson Foods Inc.	3/22/2019	YDM5705035528N	Inspector observed a bird that may have escaped from its cage during the dumping process and was then killed by a rolling cage crossing the surface of the roller bed, dragging the bird through. The bird was almost completely transected at the mid-section of its carcass and its skin and associated musculature were macerated. Noncompliance Record was issued.
P218	Pilgrim's Pride Corporation	3/21/2019	WOD5622030021G	Inspector observed 5 birds trapped by their necks between conveyor belts which killed them. "Regulatory control action was taken, and the dumper operator was instructed to stop dumping live birds onto the belt."
P7199	Tyson Foods Inc.	3/18/2019	ZHB4421030618G	Inspector observed a forklift driver drop a cage on a live bird, crushing the bird to death. "I tagged the trailer US Rejected tag # B23639865 as I took regulatory control action of preventing the driver from removing the dead bird until [redacted] arrived."
P206	Pilgrim's Pride Corporation	3/15/2019	KCC0621034615N	Inspector observed two dead birds lying in a puddle of blood with both their legs ripped off and an additional live bird on the picking line that was caught by its neck between the support and belly beam with both legs ripped off and intestines hanging out. Injuries seemed to have resulted from birds being shackled by both the feet and neck. Noncompliance Record was issued.
P325	Tyson Foods Inc.	3/13/2019	YDM2319031913G	Cages of birds were being dumped too frequently causing a pile up of birds that led to some suffocating to death. "Allowing the DOA bin to fill two three layers of birds deep with overflow onto the floor is indicative of loss of process control and is not acceptable."
P211	Palmetto Pigeon Plant Inc.	3/11/2019	DJK1409030711G	Inspector observed birds that were improperly cut during the kill process still alive and walking around; birds were also being transferred to barrels while still alive as they were improperly bled out.
P32130	Dakota Provisions LLC	3/4/2019	JEB0813034004G	Inspector observed two trailers that were missing panels due to broken cages; the trailers were not appropriately paneled for the current weather conditions as ambient temperatures dropped to negative 4 degrees. A total of 227 birds were condemned/DOA from this particular lot. "Two US Reject Tags were applied to the cages that needed maintenance."

P517	Mar-Jac Poultry-MS	2/19/2019	QOO0803023819G	Inspector observed 6 live birds in a pile comingled with DOAs. "Comingling live birds with DOAs can cause suffocation and death by means other than slaughter resulting in adulterated product."
P46374	Sanderson Farms, Inc. (Tyler Processing Div.)	2/18/2019	AGI2107022418G	Inspector observed a large pile up of approximately 200 dead or "bewildered" birds on the conveyor belt in the live hang room due to inappropriate and untimely belt adjustment by the lead team.
P1307	Mar-Jac Poultry-AL	2/12/2019	KIL0114020712G	Inspector observed a forklift operator drop a cage full of chickens from the top of a live haul trailer; over 100 chickens were grossly mangled and killed as a result of the fall.
P34668	Simply Essentials Poultry LLC	2/11/2019	SFJ3611024111G	12,815 birds were killed due to holding conditions in the extreme cold.
P579	Jennie-O Turkey Store LLC	2/11/2019	UIO2308023211G	Inspector observed a number of loose birds in the unloading area, including on walkways and underneath a truck; establishment employees continued unloading birds without addressing the issue. One of the loose birds was swept away by flowing waters in the feather trough and ended up being crushed by the feather separator while still alive.
P727	Simmons Prepared Foods Inc.	2/11/2019	VCF5921024112N	Inspector observed two condemn barrels with an excess of 30 cadavers indicating these birds likely entered the scald tank alive; inspector also observed 9 chickens enter the scald tank alive within a 3-minute timespan. Noncompliance Record was issued.
P509	Koch Foods LLC	2/7/2019	IPG0905025007G	Inspector suspended live hanging due to a large pile up, about 4 feet wide and 30 inches tall, of dead birds, live birds, and waste material/debris. Some birds suffocated or had to be humanely euthanized as a result.
P1243	Perdue Foods LLC	2/5/2019	XLB1513023005G	A line was down for nearly 30 minutes during which time birds were left hanging on the line, some with their heads in the water of the stunner causing them to drown. Plant personnel confirmed Perdue's animal welfare program procedures were not followed in this circumstance.
P218	Pilgrim's Pride Corporation	2/5/2019	WOD0622022505N	15 birds drowned in the stunner when the line was stopped to deal with a maintenance issue. Noncompliance Record was issued.
P322A	Pilgrim's Pride Corporation	2/1/2019	CNC4811023801G	Birds were held overnight in trailers in a non-temperature-controlled building enclosed on 3 sides; the only protection from the elements was a tarp covering. Inspector observed several birds with large portions of muscle that were frozen solid, and several birds had feet, feathers and wings frozen to the containers. Temperatures that night dropped to

				negative 15 degrees. 1,299 birds were DOA. Establishment didn't have a copy of procedures to follow in the case of extreme cold weather.
P208	George's Processing Inc.	1/29/2019	XIC1513011929G	Birds were being continuously dumped onto the conveyor belt transferring birds to the live hang area despite the hanging belt being down. This resulted in a pile-up of birds that caused some to smother to death. Inspector observed two full barrels of dead birds and a pile of 150-200 dead birds on the floor 4 feet wide by 8 feet long and approximately 1-3 layers deep.
P7345	Butterball LLC	1/28/2019	AGA1110011628G	Three truckloads of breeder birds were held at the establishment for 31 hours without feed or water, after being off feed for at least 24 hours before arriving to the plant. There were 38 DOAs from this flock and the inspector observed numerous hens with large, exposed wounds from the birds aggressively pecking at each other. "In two cases, the hens had managed to peck open a wound and pull out intestines and were pecking at the intestines splayed out in the cage of two separate hens."
P32	Mar-Jac Poultry Inc.	1/25/2019	CAA4401012525G	Inspector observed a plant employee retrieve a live bird that fell from a dumpster and stomp on the live bird's head before placing the carcass back into the dumpster.
P6505	Norman W. Fries Inc.	1/25/2019	BBA3307012325G	Inspector observed an employee pull 3 live birds out of a pile of dead birds and excrement; the employee hung 2 of the live birds on the line for slaughter and pulled the head off the other live bird and tossed it on the floor.
P559	Tyson Foods Inc.	1/23/2019	UWC1415014323G	Inspector found two live birds at the bottom of a pile of 15-20 DOAs that could have suffocated. "I took a regulatory control action by directing the live hang personnel to stop hanging birds on the kill line... I told [the GPM] I needed a corrective action from her before I would allow the operation to resume."
P146	Tyson Foods Inc.	1/17/2019	EJJ4516015517G	Inspector observed a bird fall out of the cage as a forklift driver was moving birds rapidly to the cage dumper; the bird was run over, which partially eviscerated it and caused a broken leg. The driver then tried to move the bird to a DOA bin without humanely euthanizing it. Inspector took regulatory control action to stop the driver. "This establishment and all Tyson Foods are committed to the proper handling of all animals… I did not see this mission expressed in the actions and comments of the associate moving the birds."

P9977	Tyson Foods Inc.	1/15/2019	YBL3119014215G	Inspector observed a number of issues that indicated the slaughter process was out of control. Water levels were too high in the feather area triggering an alarm, the head puller was off which caused some carcasses to miss the puller and the heads were creating a large pile on the floor, and in the hanging area DOAs were piling up as hanging associates were "working feverishly to relieve the belt but the number was too large." Inspector had to instruct plant personnel to stop dumping birds which, according to him, should have been done earlier.
P7903	Perdue Foods LLC	1/14/2019	UYN0605010914G	Inspector observed two large piles of live and dead birds comingled together; the piles were approximately 3-4 feet long and 2 feet high. "I indicated that these conditions are not acceptable under any circumstance and that either the establishment personnel manage the area, or the operations would be halted." Live hang was eventually stopped so the piles could be cleared.
P533	Hain Pure Protein Corporation – FreeBird East	1/13/2019	AKB1702013814N	Inspector observed at least 17 DOA birds that were improperly hung on the line and sent through the slaughter process and 2 live birds in a pile of ~20 DOAs. "I informed [redacted] of the noncompliance and the loss of process control."
P6504	Peco Foods Inc.	1/11/2019	CHK2200012411G	Inspector observed 6 trailers in which most of the birds were very wet from rainfall. Temperatures were only 50 degrees, but cooling fans were on, causing the birds to shiver with their eyes closed; others were quiet or in a comatose state. There was a significant number of DOAs as a result.
P27389	Pitman Farms	1/2/2019	NCO1214014602G	Inspector observed two damaged trailer modules that had several dead chickens inside. Two of the chickens' heads were smashed between the cage and the framework of the module. "[redacted] found what appeared to be chickens dead inside the modules and tagged the trailer with [Reject Tag] No. B41202485."

Attachment 2

FSIS Directive 6110.1: Verification of Poultry Good Commercial Practices, 7/3/2018

UNITED STATES DEPARTMENT OF AGRICULTURE
FOOD SAFETY AND INSPECTION SERVICE
WASHINGTON, DC

# FSIS DIRECTIVE	6110.1	7/3/18

VERIFICATION OF POULTRY GOOD COMMERCIAL PRACTICES

I. PURPOSE

This directive is a consolidation of relevant information from Section VII, Verification of Good Commercial Practices for Poultry, of FSIS Directive 6100.3, *Ante-mortem and Post-mortem Poultry Inspection* and expired FSIS Notice 44-16, *Instructions For Writing Poultry Good Commercial Practices Noncompliance Records and Memorandum of Interview Letters For Poultry Mistreatment.* The directive provides instructions to inspection program personnel (IPP) for writing a noncompliance record (NR) for noncompliance with the regulations requiring the slaughter of poultry in accordance with Good Commercial Practices (GCP), as well as instructions for composing a Memorandum of Interview (MOI) when documenting a meeting between IPP and establishment management regarding an observation of the mistreatment of live poultry before slaughter.

KEY POINTS:

- *Provides IPP instructions on how to gather and assess information when verifying poultry GCP*
- *Clarifies that video surveillance can be used by the establishment as a form of GCP record*
- *Provides instructions on how to properly write GCP NRs and poultry mistreatment MOIs*
- *Provides instructions to the District Veterinary Medical Specialist (DVMS) on how to review NRs and MOIs to assess accuracy*

II. BACKGROUND

A. In poultry operations, following GCP, including the employment of humane methods of handling and slaughtering, increases the likelihood of producing unadulterated product. The Poultry Products Inspection Act (PPIA) (21 U.S.C. 453(g)(5)) and the regulations (9 CFR 381.90) provide that poultry carcasses showing evidence of having died from causes other than slaughter are considered adulterated and must be condemned. The regulations (9 CFR 381.65(b)) also require that poultry be slaughtered in accordance with GCP. Poultry are to be slaughtered in a manner that ensures that breathing has stopped before scalding, so that the birds do not drown, and that slaughter results in thorough bleeding of the poultry carcass. Compliance with these requirements helps ensure that poultry are treated humanely. In general, poultry should be handled in a manner that prevents needless injury and suffering in order to produce a commercially marketable product.

B. If birds hung on the slaughter line die before slaughter because of mishandling, or if birds are being killed in a manner that does not comply with GCP as defined in 9 CFR 381.65(b), the resultant product is adulterated under the PPIA. This includes the treatment of all birds brought onto the official premises of a slaughter plant, not just those entering production. IPP are to issue an NR for noncompliance with 9 CFR 381.65(b) (failure to handle the birds in accordance with GCP) when an ongoing pattern or trend develops where birds are not being slaughtered in a manner that results in thorough bleeding of the carcasses, that results in birds entering the scalder before their breathing has stopped, or that otherwise involves their being handled in a systematic way that results in their dying otherwise than by slaughter.

NOTE: Additional discussion and guidelines for industry poultry handling and slaughter are found in the *Federal Register* notice "Treatment of Live Poultry Before Slaughter", 70 Fed. Reg. 56624 (September 28, 2005).

III. PERFORMING THE GCP VERIFICATION TASK

A. The Public Health Veterinarian (PHV), Inspector-in-Charge (IIC), or designee, on a per-shift basis, when the establishment slaughters, is to perform either a routine or a directed poultry GCP task to systematically observe the conditions from the receiving to pre-scald areas, unless performing the weekly records review. Once a week the PHV, IIC, or designee is to review establishment records, when available, documenting adherence to poultry GCP, randomly selecting the day of the week on which to perform the review.

B. During this records review, IPP are to ask the establishment for, and review, any records regarding GCP. An establishment may use video surveillance of live poultry handling areas and can offer this as a form of record. IPP are to refer to FSIS Directive 5000.9, *Verifying Video or Other Electronic Monitoring Records*, for instructions for reviewing records created by video. When reviewing any records, IPP are to assess whether there is evidence that the establishment is monitoring its GCP from receiving through pre-scald areas. If IPP find that such records do not exist, or that they do not provide a basis to make a judgment on whether the establishment is following GCP, they are to visit the establishment areas from receiving through pre-scald and make observations. If the records provide a basis upon which IPP can make a judgment that the establishment is following GCP, then a poultry GCP task can be entered into the Public Health Information System (PHIS) as completed.

NOTE: Establishments are not required to keep written or video GCP records. However, if establishments do keep such records and make them available, IPP are to review a sample of the records.

C. During observation, IPP are to visit areas from receiving or holding through pre-scald to observe whether establishment employees are mistreating birds or handling them in a way that will cause death or injury or will prevent thorough bleeding or result in excessive bruising. For example, IPP should determine whether:

1. Establishment employees are breaking the legs of birds to hold the birds in the shackle, squeezing them into shackles or otherwise mishandling birds while transferring them from the cages to the shackles;

2. In cold weather, birds are frozen inside the cages or frozen to the cages themselves; or

3. The birds are dead from heat exhaustion. The main observable symptom of heat stress in poultry is heavy panting, in addition to dead or dying birds in cages.

NOTE: These examples do not necessarily describe prohibited activities and noncompliance, but can still warrant documentation through an MOI.

IV. DOCUMENTATION OF POULTRY GCP NONCOMPLIANCE AND MISTREATMENT OF POULTRY

A. During poultry handling and poultry slaughter, IPP are to document through NRs or MOIs establishment failure to follow GCP. From a regulatory perspective, adherence to GCP is a process control issue and not a bird-by-bird performance standard issue. IPP are to write NRs for GCP noncompliance only when they can demonstrate that an establishment has lost process control and there is an ongoing pattern or trend of birds dying otherwise than by slaughter. An NR is also appropriate if the birds are not being appropriately bled out, with the establishment's handling practices resulting in the production of adulterated product [9 CFR 381.1(b)(v) and PPIA 21 U.S.C. 453(g)(5)]. But if IPP cannot support a loss of process control by an establishment, they are to document poultry mistreatment in MOIs.

NOTE: Refer to Attachment 1, a question and answer scenario that clarifies verification of GCP for poultry.

B. Writing a GCP NR

1. IPP are to document that the establishment lost control of its process for handling birds, and thus is not operating in accordance with GCPs, when there is the repeated occurrence of birds:

    a. Dying otherwise than by slaughter (e.g., repeatedly entering the scalding tank while still breathing); and

    b. Not being appropriately bled out (e.g., as evidenced by equipment malfunction that results in increased numbers or clusters of cadavers being disposed of or condemned); or

    c. Being intentionally and repeatedly mistreated by establishment personnel.

2. In determining whether there has been a loss of process control, IPP are to consider, among other factors, whether the cause of the problem is that the establishment's equipment (e.g., bleeding or stunning equipment) is not functioning properly by asking the following questions:

    a. What is the problem?

    b. Is the establishment's equipment (e.g., bleeding or stunning equipment) not functioning properly?

NOTE: Stunning is not a requirement in poultry slaughter, but if stunning system malfunction contributes to other process control concerns then this should be noted by IPP.

    c. When did the problem occur?

    d. How long did the problem last?

    e. How did the establishment react?

    f. What did the establishment do to correct the problem?

    g. Were there periods of control?; and

    h. Did the problem reoccur?

3. IPP are to document noncompliance with 9 CFR 381.65(b) when the establishment is found not following GCP. For example, an NR would be warranted when IPP observe frequent or repeated instances of birds not being slaughtered in a manner that results in thorough bleeding of the

carcasses or of birds still breathing when they enter the scalder, and the process that the establishment is employing is not able to prevent these problems from reoccurring.

NOTE: An isolated instance does not represent a loss of process control and is to be documented in a mistreatment MOI, not an NR.

4. IPP are to follow instructions in FSIS Directive 5000.1, *Verifying an Establishment's Food Safety System*, Chapter V, Section II. D., for entering the noncompliance. In the PHIS Poultry Good Commercial Practice task, when documenting GCP noncompliance, IPP are to include the following additional information in the description of noncompliance (Block 10):

    a. Enter the date and approximate time when, and identify the location where, the IPP observed the noncompliance;

    b. Describe the event and explain how it is noncompliant with 9 CFR 381.65(b) (e.g., birds observed breathing when entering scalder; birds not bleeding out (cadavers));

    c. Describe any actions taken by the establishment to address or correct the noncompliance;

    d. Document any regulatory control action taken and include the U.S. Reject tag number if a tag is utilized; and

    e. Refer to Attachment 2, an example of an NR for 9 CFR 381.65(b) noncompliance in PHIS.

NOTE: IPP are **not** to quote the Humane Methods of Slaughter Act of 1978, the National Chicken Council Audit Guidelines, the FSIS *Federal Register* notice - "Treatment of Live Poultry Before Slaughter" since this serves a guideline for industry, or any of the establishment's written poultry handling plans.

C. Poultry mistreatment MOIs are primarily issued when, based on findings by the IPP, the establishment is mistreating birds before or during shackling or elsewhere in the slaughter operation, up until the kill step, but the mistreatment event does not demonstrate that the establishment's process is out of control (e.g., only single or small numbers of birds are involved, or an isolated incident that does not represent an ongoing problem), and therefore, there is not noncompliance with 9 CFR 381.65(b). The MOI documents the discussion between IPP and establishment management about the poultry mistreatment event.

NOTE: FSIS Directive 8010.2, *Investigative Methodology*, Chapter IV, Section III, provides additional details for writing an MOI.

1. IPP are to document poultry mistreatment when, for example:

    a. Isolated instances of poultry mistreatment occur after the normal kill step, such as a bird that is still breathing when entering the scalder; or

    b. There is an unusually high number of injuries to the birds, e.g., broken legs or wings, but there is no evidence of intentional mistreatment.

2. IPP, after they have observed poultry mistreatment, are to:

    a. Notify the establishment immediately;

    b. Discuss the mistreatment with the establishment as soon as possible after the event is resolved and advise the establishment that preventing the mistreatment of poultry decreases the chances of producing adulterated carcasses;

c. Document the discussion and any of the establishment's planned actions by writing a mistreatment MOI in the poultry GCP task:

   i. Open a poultry GCP task in PHIS and verify 9 CFR 381.65(b) from the Regulations tab;

   ii. On the Findings tab, check "Non-Regulatory Concerns";

   iii. Click on the "Save" button; and

   iv. Click on "Create/Edit MOI".

d. Create the MOI in the Issues tab:

   i. Begin with the establishment number, establishment name, and the date and time of the meeting. List all the participants in the meeting, including IPP;

   ii. Include a description of the mistreatment event, when it was observed, where it was observed, and the names of those who witnessed the event. IPP are to describe the observations that led them to the determination of the mistreatment;

   iii. Summarize any actions taken directly by the establishment in response to the event and its response to any discussion between establishment management and IPP regarding the event;

NOTE: IPP are **not** to quote the Humane Methods of Slaughter Act of 1978, the National Chicken Council Audit Guidelines, the *Federal Register* notice - "Treatment of Live Poultry Before Slaughter," or any of the establishment's written poultry handling plans.

   iv. Enter MOI text and click on the "Save" button;

   v. Click on "Finalize" to complete the MOI; and

   vi. Provide copies of the MOI to the establishment, the DVMS, and the inspection file.

e. Refer to Attachment 3, an example of an MOI for poultry mistreatment.

V. DVMS REVIEW OF GCP NRs AND POULTRY MISTREATMENT MOIs

A. In keeping with the instructions in FSIS Directive 6910.1 Rev 1, *District Veterinary Medical Specialist (DVMS)—Work Methods*, the DVMS is to correlate with IPP about FSIS policies and procedures that pertain to GCP in poultry. The correlation includes the review of GCP NRs and mistreatment MOIs to determine the accuracy and consistency of this documentation. In addition to Agency training provided on GCP principles, this additional DVMS involvement will help ensure that IPP are familiar with the issues that determine whether to document a GCP NR or a poultry mistreatment MOI and ensure that IPP consistently document these issues in the proper format.

NOTE: The DVMS can generate a PHIS report of "Noncompliance Records for a District" using a filter for the GCP regulation, 9 CFR 381.65(b).

B. In specific situations, after DVMS review of a mistreatment MOI, there may be a need for additional notification of the appropriate state officials. If so, the DVMS is to:

1. Collaborate with the in-plant inspection team and the District Case Specialist to prepare a Letter of Concern (LOC) and a cover letter and send:

    a. The LOC to establishment management;

    b. A cover letter and a copy of the LOC to the appropriate state official;

    c. Copies of the LOC to the IIC at the establishment and the Frontline Supervisor; and

    d. Keep one copy of the LOC in the District Office (DO).

VI. IPP AWARENESS OF ESTABLISHMENT'S RESPONSES TO NRs AND MOIs

A. IPP are to be aware that, if establishments have a PHIS e-authentication account, the establishment can respond individually to NRs and MOIs in PHIS. After the IPP finalize an NR or MOI in PHIS, IPP are to advise the establishment that it can go to its individual documents and add a response in the Plant Response text field or upload an attachment using instructions in the PHIS Industry User Guide.

B. Specifically with regard to an MOI, if the establishment does not have access to PHIS, IPP are to document the objection, if presented verbally, on the MOI, or if written, IPP are to attach the objection to the MOI. IPP are to reference the attachment in the MOI and provide a copy of the MOI with the establishment response to plant management as soon as the MOI response is complete.

NOTE: If the establishment elects to provide any other response, such as a proactive change to their program, this also may be attached to the MOI using these same methods.

VII. QUESTIONS

Refer questions regarding this directive to the Policy Development Staff through askFSIS or by telephone at 1-800-233-3935. When submitting a question, use the Submit a Question tab, and enter the following information in the fields provided:

Subject Field:	Enter **Directive 6110.1.**
Question Field:	Enter question with as much pertinent detail as possible.
Product Field:	Select **General Inspection Policy** from the drop-down menu.
Category Field:	Select **Slaughter/ Poultry** from the drop-down menu.
Policy Arena:	Select **Domestic (U.S.) Only** from the drop-down menu.

When all fields are complete, press **Continue** and at the next screen press **Finish Submitting Question.**

NOTE: Refer to FSIS Directive 5620.1, *Using askFSIS*, for additional information on submitting questions.

Roberta J Wagner

Assistant Administrator
Office of Policy and Program Development

ATTACHMENT 1

Clarification of Verification of Good Commercial Practices for Poultry

Question:

Is regulatory control action warranted, or a Noncompliance Record (NR) issued, when FSIS personnel observe a single bird entering a poultry scald tank while still breathing?

Answer:

a. Not necessarily. From a regulatory perspective, this is a process control issue and not a bird-by-bird performance standard issue. FSIS has recommended that establishments take a systems approach to the handling of poultry at slaughter. Inspection personnel consider whether the establishment's poultry slaughter system is functioning in a way that is out of compliance with 9 CFR 381.65(b) and thus not operating in accordance with good commercial practices. If FSIS inspection program personnel find that there is an ongoing pattern or trend of birds dying otherwise than by slaughter or birds not being appropriately bled out, the establishment's handling practices are resulting in the production of adulterated product [9 CFR 381.1(b)(v) and PPIA 21 U.S.C. 453(g)(5)]. Whether inspection personnel respond with a NR or a regulatory control action depends on the circumstances involved. For example, if the establishment's equipment is not properly aligned, and as a result, the system is repeatedly putting birds into the scalding tank while they are still breathing, the birds are dying otherwise than by slaughter, they are adulterated, and the establishment's system is out of control. Inspection program personnel are to issue a NR (under a Poultry GCP task) and take a regulatory control action per 9 CFR 500.2(a) (2) & (3).

b. On the other hand, if FSIS inspection personnel observe evidence of an isolated instance in which a bird was still breathing when it entered the scalder, but the system is otherwise under control, there is no basis for regulatory action at that point. Inspection personnel should discuss the isolated instance with the establishment and document the discussion in a mistreatment Memorandum of Interview (MOI). This serves to bring to the establishment's attention that live poultry must be treated in a manner consistent with good commercial practices. Additional discussion of poultry handling is in Federal Register: Docket No. 04-037N - Treatment of Live Poultry Before Slaughter.

ATTACHMENT 2

Example of a GCP NR

P38, Smith Poultry Farms; Regulation 381.65b;
On Monday, February 5, 2018 at approximately 06:08 hours, I, Dr. Jones IIC, observed the following noncompliance of regulation 381.65(b). While performing a Good Commercial Practices verification, thirty (30) cadaver birds were observed at the rehang station, between 06:00 and 06:10 hours. The cadaver birds were removed from the rehang station, and none of the birds had a bleeding cut on the neck. The birds were immediately presented to Mr. Smith, evisceration supervisor. Mr. Smith and I proceeded up the kill line and found that no back-up cutter was at the station located past the automatic knife. Stunned birds were passing through the automatic knife on line #2 without the neck being cut. Mr. Smith immediately stopped the kill line. I proceeded to the live hang room and applied US Reject tag #5551212 to the hanging table. Additional supervisors arrived and discovered that necks were not cut due to a dull blade in the automatic knife. They called the maintenance supervisor, who installed a freshly sharpened blade. In addition, supervisors went through and removed live birds hanging with their combs in contact with the electrical water bath stunner, returned these live birds to the hanging table, and applied a bleeding cut to each bird at post-stun up to the scalder. Mr. Smith located and returned the back-up neck cutter to their position and assigned an additional back-up person after the automatic knife. I allowed the line to restart to observe the automatic knife, and Mr. Smith assured me that the automatic knife and back-up neck cutters will be closely monitored for the rest of the shift. I removed the US reject tag and Mr. Smith started the #2 kill line. Mr. Smith confirmed that there were ten (10) additional cadavers that reached the rehang station, and that all cadaver birds were condemned. The PPIA (21 U.S.C. 453(g)(5)), and 9 CFR 381.90, provide that poultry carcasses showing evidence of having died from causes other than slaughter are considered adulterated and must be condemned.

ATTACHMENT 3

Example of a Poultry Mistreatment MOI

Est. P38, Smith Poultry Farms, January 16, 2018, 22:30 hours. In attendance: Dr. Jones, IIC, SPHV, Mr. Randy Smith, Evisceration Supervisor, SCSI Pat Woodland.

At approximately 21:25 hours, while observing conditions in the live hang pen in the poultry receiving department, I observed eleven (11) live, weak young chickens in a barrel that contained approximately twenty (20) dead-on-arrival (DOA) chickens. I summoned Mr. Smith to notify him of this finding. Mr. Smith immediately went through the DOA barrel and removed the live birds, and he elected to euthanize them, due to their weakened state, by cervical dislocation. I reminded Mr. Smith that the PPIA and Agency regulations require that live poultry be handled in a manner that is consistent with good commercial practices and that they not die from causes other than slaughter. I recommended that Mr. Smith review Federal Register Notice Vol. 70, No. 187, published September 2005 [Docket No. 04–037N] for FSIS recommendations concerning treatment of live poultry before slaughter and provided him a copy of this document. I notified Mr. Smith that this MOI will be forwarded to the District Office and the District Veterinary Medical Specialist (DVMS) in case additional follow-up is recommended. Respectfully, Dr. Jones, IIC P38 Smith Poultry Farms.

NOTE: This MOI example refers to the *Federal Register* notice but does not directly quote any portion of it.