COVID-19 Acutely Impacted the Delmarva Poultry Industry in Early 2020

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Abstract

Early community spread of COVID-19 presented a public health crisis and Delmarva’s essential workforce at the poultry processing plants. Plant workers in May 2020 were struggling to adapt to exposure risk and illness in the workforce. Furthermore, pressures of an unfamiliar marketplace strained the supply and demand linkages in poultry processing. By utilizing strategies to meaningfully slow the supply of chicken at the processing plant, farm and hatchery, supply was slowed without stopping. This ensured security in the food supply, but jeopardized farmers raising these livestock. After weeks of processing adjustments, some chicken farms were depopulated as a last resort to protect their welfare. The remains of the depopulated flocks presented a risk to public health from environmental externalities. Across the Delmarva peninsula, carcasses were composted in the housing in which they were raised along with feed, bedding and manure, and high-carbon material, and were carefully monitored to reduce environmental impacts. Compost is recycled into a resource and can be utilized safely on farms for soil conditioning, like organic fertilizer, rather than presenting an environmental disaster.

In April and May of 2020, while grocery stores in the United States were being wiped of foodstuffs, public testing for COVID-19 was ramping up. This was in part because of illnesses and calls to action from workers in meat processing plants across the country who were becoming infected with and fearful of the COVID-19 illness. Industry and the Government sprang to action with additional protective equipment, paid sick leave, mandatory health screening, and implementation of the Defense Production Act to ensure American food security. Nearly all citizens were impacted by the disruption in the supply chain of food, such as milk and chicken in the grocery stores, but agribusinesses, farmers, and the environment fell under threat as well.

In many places, food shortages hit before travel restrictions. It was not the inability to move food to consumers globally that impacted grocery store stocks, but the supply itself. At that time, meat processing facilities were still running at a relatively normal rate. The first disruption was the almost immediate and total decline in purchasing of food service-packaged (bulk) meat, like 40-pound boxes of fresh and frozen boneless skinless chicken breast, which would have normally been bought by restaurants for dishes such as chicken tenders, sandwiches and Alfredo. Processing plants across the region preparing nearly 1.7 million chickens per day for distribution suffered decreased speeds as factory lines were accommodating larger than intended birds.1 The companies also shifted to direct-to-consumer packaging and hosted drive-through chicken sales at large outdoor venues on Delmarva where food service packages were put on clearance to lines of eager people. Soon also, scores of workers in each shift could not or would not come to work because of the virus’ spread, further limiting the supply chain.
As supply issues quickly stacked up against solutions, plants and chicken farmers utilized other means of slowing the supply of chickens without a marketplace. At the plant, rendering operations that breakdown by-products like feathers, scraps and blood were maximized to recover fat and protein for animal feed from entire birds that could not be sold. Fewer eggs were hatched and chicks delivered to be raised by poultry farmers and those farmers with growing birds implemented strategies to slow down their chickens’ growth and draw out the supply of chickens to be processed at the plant. By the end of May 2020, these strategies had helped relieve some pressure in the system, but there were too many large chickens on farms and too few resources to bring them to any market. Compounding the crisis was the sheer scale of the issue; every chicken processing facility was strained, so cooperation of competitors (which historically solves acute issues) was not available. The final option available, like was done to millions of gallons of milk, was disposal (Figure 1).

Figure 1. Preparation of composting piles following euthanasia of unmarketable chickens due to COVID-19 pandemic. Illustrating high-carbon material mixed with and covering carcasses in a Delaware chicken house in May 2020. Photo courtesy C. Brosch.

The decision to cull birds on a farm is never an easy one, and it is even more difficult to destroy an entire 20 to 50 thousand head flock, but the alternatives are worse. As chickens are fed and grow, they have a higher demand for feed. At market age, a chicken farm only has capacity to store a few days of feed before it needs to be restocked. This increases the risk that chickens’ welfare will suffer, as feed demand across the peninsula will exceed the logistical capacity of
delivery. Furthermore, at a certain weight, chickens become lethargic and may suffer from an unwillingness to eat or drink enough to maintain their health. Nursing large healthy chickens through a backlog in processing also strains the infrastructure and the housing is stocked for efficient use of space and heat, so delays can also lead to crowding and stress. Ultimately, if the life of a marketable chicken is extended beyond a few weeks, the welfare will quickly decline to a point where it is more humane to cull them on the farm.

The implications of in-field culling of flocks, or using the industries’ term “depopulation,” are also dire for human health and the environment. Decades ago, and in other extreme cases today, pits were dug to bury mass mortalities on farms to control the decomposition and eliminate disease vectors like flies and scavengers. This disposal method will still contribute to groundwater contamination by nitrogen causing eutrophication of down-stream surface waters and perhaps drinking water well contamination. The preferred alternative is in-house composting, where carcasses are mixed and stacked with dried manure and woody material to decompose in the poultry house as carbon rich materials. In the house, moisture, temperature and ventilation can be controlled better than underground, while maintaining the same control over scavengers (Figure 2).

Figure 2. Temperature monitoring of compost piles in Delaware following euthanasia of unmarketable chickens during COVID-19 pandemic in May 2020. Photo courtesy G. Cartanza.

Monitoring of conditions around and within the pile is easy and convenient inside a poultry house as well. The conclusion of decomposition by in-house composting is a renewable resource...
that can be land applied for soil fertility in accordance with nutrient management plans aimed at minimizing water quality impacts of agriculture.

The Nutrient Management Program at the Delaware Department of Agriculture was established by law in 1999 to implement regulations for the land application of manure and fertilizers to protect water quality and farm profitability. The Program and the University of Delaware certify farmers and crop consultants following nutrient management training. Farmers are reimbursed for expenses related to the implementation of plans written by certified consultants. The Program enforces the regulations on plans and plan implementation, but also the disposal of farm mortalities and was instrumental in enforcing the requirements for proper composting to protect the environment and public health. In these tragic circumstances, public officials were successful in doing both.

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References

1. Delmarva Chicken Association (Ed.). (2020). DCA Facts & Figures. Retrieved December 17, 2020, from https://www.dcachicken.com/facts/facts-figures.cfm

2. Lusk, J., & Croney, C. (2020, May 14). The Road from Farm to Table. Retrieved December 17, 2020, from https://ag.purdue.edu/stories/the-road-from-farm-to-table/

3. USDA-APHIS. (2016, January). Depopulation and Disposal for Birds in Your HPAI-Infected Flock. Retrieved November 19, 2020, from https://www.aphis.usda.gov/publications/animal_health/2016/hpai_depopulation_disposal.pdf

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