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High Path Avian Influenza Update and the On-Farm Financial Impacts from an Outbreak

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In 2014/15, the U.S. poultry industry experienced one of the most significant animal health emergencies due to high pathogenic avian influenza (HPAI), also known as “bird flu.” There were 232 confirmed cases in poultry flocks that impacted over 50 million birds during this time. The majority of birds affected in the 2014/15 outbreak were commercial egg layers and turkeys grown for meat in Iowa and Minnesota. Federal expenditures to control the outbreak and pay poultry growers for lost birds exceeded \$1 billion. Unfortunately, the poultry industry is experiencing another outbreak challenging the scale of 2014/15.

According to USDA-APHIS, the first reported case of HPAI in 2022 was on February 12th in a commercial turkey flock in Dubois County, Indiana, that affected 29,000 birds. Shortly after, a commercial broiler flock in Fulton County, Kentucky, experienced an outbreak that affected 231,400 birds. As of June 1st, 356 confirmed cases of HPAI occurred, affecting 37.9 million birds across the U.S. Like 2014/15, the majority of birds impacted this year were in commercial egg layers and turkey operations, accounting for 76% and 14% of the total birds affected across the U.S., respectively (Figure 1). While the number of birds affected by HPAI is currently below the number in 2014/15, the number of confirmed cases is considerably greater. Part of the reason is the number of confirmed HPAI cases in backyard flocks in 2022 compared to 2014/15. The 2014/15 outbreak only had 21 confirmed cases in backyard flocks compared to 173 today. Figure 2 highlights the proportion of cases by sector. One suggestion to explain the substantial difference in backyard cases is improved awareness and education on HPAI for backyard flock owners after the 2014/15 outbreak, which encouraged more reporting of sick birds. Another suggestion is that COVID-19 increased the number of backyard flock owners, increasing the opportunity for exposure across the U.S. Furthermore, the two outbreaks are different in concentration and location. In 2014/15, the HPAI outbreak was concentrated in commercial flocks in the mid-west with 15 states with at least one confirmed infection. This year, 35 states, coast to coast, have at least one confirmed infection, with Iowa leading in the number of birds affected (13.3 million birds).

Wild birds, specifically migratory birds, can also carry HPAI and have been associated with spreading the disease in commercial poultry flocks. Since Kentucky's poultry operations are concentrated in the western part of the state and are in one of the main migratory waterfowl flyways (Mississippi Flyway), biosecurity is critical to prevent an outbreak. While the continued outbreaks of HPAI have been mainly in commercial turkey and layer flocks, commercial broiler flocks are not immune to outbreaks. Kentucky ranks 7th in the U.S. in broiler production, accounting for more than \$709 million in farm-level cash receipts in 2020. Therefore, understanding the financial implication of contracting HPAI is critical and highlights the importance of strict biosecurity enforcement.

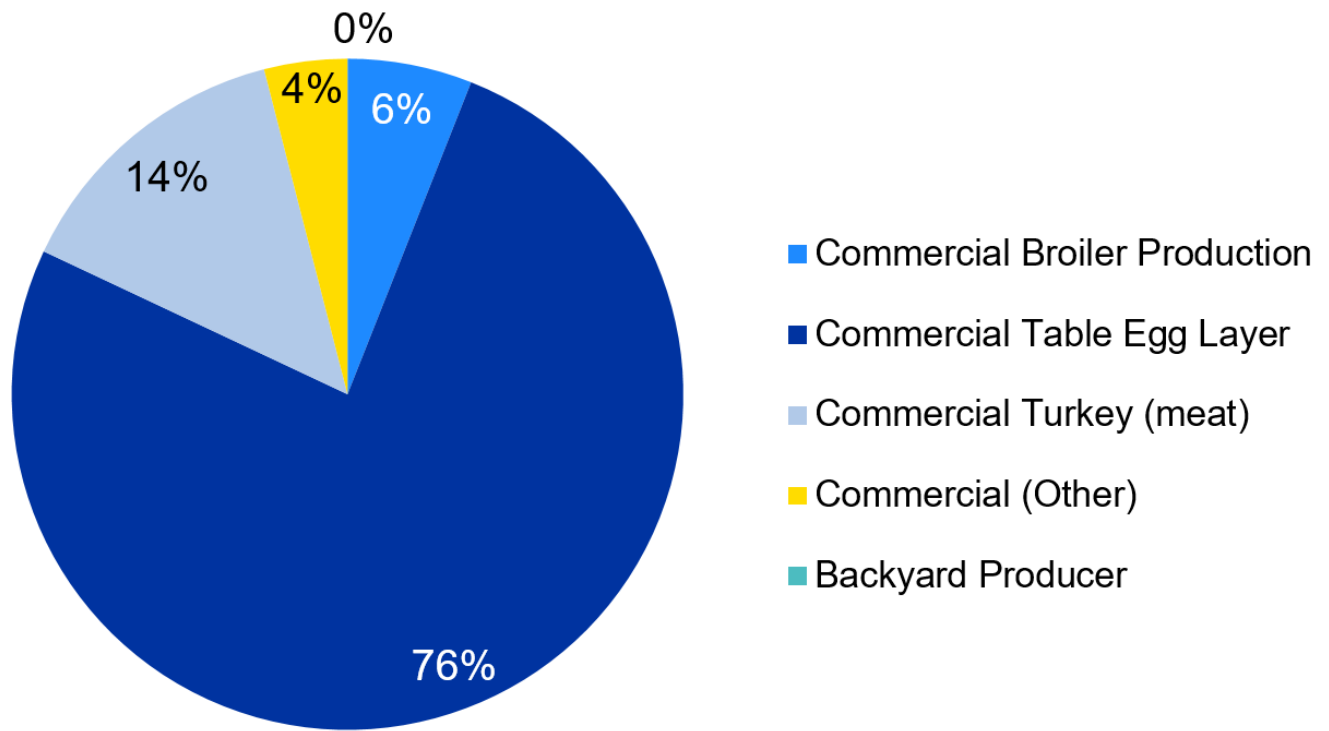
Suppose an outbreak does occur in your poultry operation. In that case, USDA provides funding to depopulate, clean and disinfect, and pay growers for the birds lost to HPAI. It is important to note that growers do not receive payments for future flocks lost while barns are cleared of the virus, which could last upwards of 120 days. Not only does the grower lose anticipated revenue during the time out (e.g., 1-3 flocks for broilers), but you continue to incur expenses like maintenance and loan payments. With no revenue protection provided by federal programs or private insurance options for lost flocks, the financial risk of contracting HPAI can be devastating.

We studied the financial impact of contracting HPAI in a standard four broiler house (43 ft. x 600 ft.) operation in Kentucky with 32,300 broilers per house, a 56-day grow-out period, and 17 days to clean between flocks. We looked at various scenarios, including the type of farmer, the number of flocks out, and the timing of the infection during a 20-year timeframe. The two types of farmers considered were a beginning farmer and an experienced farmer. The beginning farmer was defined by the requirements to qualify for the Beginning Farmer Loan Program through the Kentucky Agricultural Finance Corporation. We also looked at losing one, two, and three flocks due to an outbreak and three timings of when the infection occurred during a 20-year timeframe. Our study showed that beginning farmers were more susceptible to significant financial losses compared to the experienced farmer due to their more vulnerable financial position.

Furthermore, contracting HPAI early (Year 2) in the broiler house investment had a larger financial impact than contracting HPAI later (Year 18). Therefore, beginning farmers with low net worth when initially investing in a broiler operation also need to invest in biosecurity measures earlier to mitigate the potential for contracting HPAI. Regardless of farmer type, the loss in net farm income from contracting HPAI early is \$46,512, \$97,658, and \$158,348 for the loss of one, two, and three flocks, respectively. This loss in net farm income could also be interpreted as the on-farm equity required to self-insure the operation from HPAI.

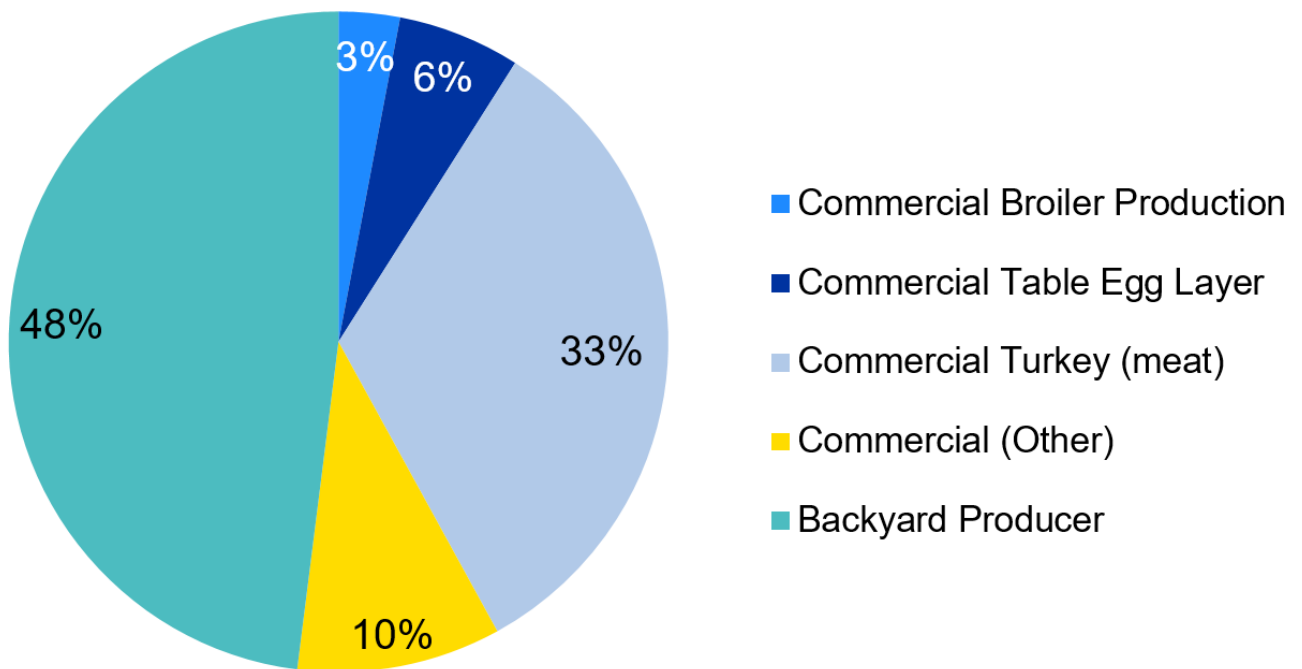
While HPAI is a risk typically perceived to have a low probability of occurring, we experienced it in Kentucky this year. As seen above, the potential impact on the operation can be substantial and potentially catastrophic financially. Therefore, early adoption of biosecurity measures is imperative as a financial risk mitigation method for a disease outbreak. Producers should also consider managing this type of risk, should they be forced to deal with it. These findings also highlight the importance of more insurance companies offering HPAI policies or USDA providing loss of revenue support to protect Kentucky poultry producers in the event of an outbreak.

Figure 1: Percentage of total birds affected by sector as of June 1, 2022.



Source: USDA-APHIS

Figure 2: Percentage of confirmed cases of HPAI by sector as of June 1, 2022.



Source: USDA-APHIS

Resources

USDA-APHIS. "[2022 Confirmations of HPAI in Commercial and Backyard Flocks.](#)"

USDA-APHIS. "[The HPAI Indemnity and Compensation Process.](#)"

Shockley, J.M., T. Mark, K. Burdine, and L. Russell. "[Financial Implications from Contracting Avian Influenza in a U.S. Broiler Operation.](#)" *Journal of Applied Farm Economics* 3, no. 1 (Spring 2020).

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