

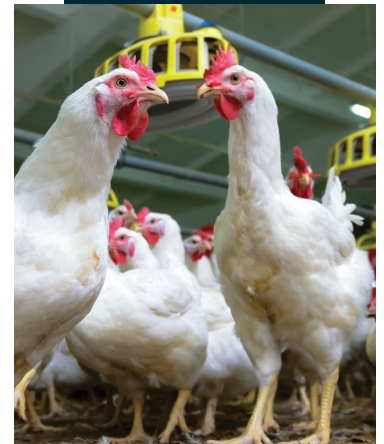
THE GLOBAL IMPACT OF HPAI

EXECUTIVE SUMMARY

Data from the World Organisation for Animal Health's shows a record 167.8 million birds killed and disposed of from HPAI in 2022. To date, more than 58 million birds have died in the United States due to HPAI. In Europe, nearly 2,500 confirmed cases of HPAI between 2021-2022 led to the slaughter of about 48 million domestic birds. In the U.S., the egg industry has been especially hard hit by this disease. While the European egg market has also set new records, values haven't ascended to the same heights as those witnessed in the U.S.

KEY FINDINGS

- While layers only account 4% of the outbreaks, 75% of the birds slaughtered in the U.S. have been layers.
- Midwest large shell eggs soared to a record high \$5.46/dozen in December—76% higher than the previous record set at the start of the pandemic.
- The outbreak has impacted the poultry meat trade between the EU and other countries. EU poultry meat exports collapsed by almost 10% in 2022.
- In Q4 2022, HPAI reached South America for the first time, a critically important poultry exporting region which had not yet faced the virus.
- HPAI no longer seems to be disappearing during the summer months as it has generally been expected to.



HOW DO THE CURRENT HPAI OUTBREAKS COMPARE TO PAST OUTBREAKS?

This current variant, the H5N1 virus, was first identified in the fall of 2020 in Europe, before jumping to the US—and eventually to other parts of the globe.

What makes this outbreak so bad is how highly virulent it is. HPAI was first detected on a commercial turkey farm in Indiana in late-February of last year. Within one year, it had spread to 47 states. To date, more than 58 million birds have died in the US. In Europe, nearly 2,500 cases in 37 countries were confirmed between 2021-2022, leading to the slaughter of about 48 million domestic birds.

This outbreak is seemingly interminable. In the past, the bird flu would typically emerge with the start of spring migration and eventually die off with the arrival of summer. This strain can survive the harshest of conditions—from extreme heat to heavy snowfall. Though detections have quieted down at times, the virus has never gone away.

THE MARKET IMPACT ON THE EGG MARKET, COMPOUND FEED AND OTHER COMMODITIES

The egg industry has been especially hard hit by this disease. 75% of the birds slaughtered in the U.S. have been layers—an astounding fact considering that layers only account 4% of the outbreaks. The reason for that is the size of the farms in the U.S., which are much larger due to economies of scale.

That impact is especially disastrous during high-demand periods such as the holiday baking period. Midwest large, the US benchmark shell egg quotation, soared to a record high \$5.46/dozen in December—76% higher than the

previous record of \$3.09 set at the start of the pandemic. Strength in the shell egg market carried through to egg products. Every egg product item quoted by Urner Barry—whole egg, yolk, and egg whites—climbed to new records in 2022.

While the European egg market has also set new records, values haven't ascended to the same heights as those in the U.S. Farms in Europe are smaller and are more concentrated so farmers there are dealing with a different issue, which is the ability to repopulate. There's still quite a lot of production missing throughout the EU, which is keeping prices firm.

Stratégie Grains' analysts estimate that this outbreak has resulted in a 2% year-over-year decline in European poultry production in 2022. European poultry compound declined by 3% last year.

Industrial feed use by the poultry sector was also affected by other issues including high production costs along with competition from Brazil in the EU Member States and on the world market.



THE GLOBAL IMPORT AND EXPORT SITUATION IN THE WAKE OF HPAI

In 2015, the U.S. imported a tremendous amount of shell eggs and egg products from Europe to help cover its deficits. This time, Europe is dealing with the same issue. Since importing product from infected areas is prohibited, there's been little relief in terms of imports. The U.S. imported 130% fewer volumes last year than it did in 2015.

Canada is also battling the bird flu and looking to the US to help fill in its gaps. USDA data shows that exports to Canada were the highest ever recorded for January.

The bird flu is now spreading at an unprecedented pace in Japan. Japan is second only to Mexico in the number of eggs consumed per capita per year. As a result, the U.S. is starting to see increased export inquiries from that part of the world.

The outbreak also impacted the poultry meat trade between the EU and other countries. According to Eurostat database, EU poultry meat exports collapsed by almost 10% in 2022.

Also, EU imports increased because some European buyers couldn't find the supply they needed internally. Imports increased by almost 10% in the EU in 2022, with a rise of 25% in Brazilian poultry meat imports. Imports increased also from Ukraine as internal consumption there collapsed following the start of the war.

THE STATE OF VACCINES ACROSS THE GLOBE, AND THE BARRIERS WITH THAT PROCESS

A number of countries have used widespread vaccination of poultry flocks as a tool against HPAI. These were mostly middle-income countries looking to preserve their food security.

Among developed countries, and particularly those with poultry export industries, there has been significant hesitation to use HPAI vaccines due to factors including including probable loss of export markets, fear of silent spread, and the complexity of administering the vaccines.

The trade question is the bigger obstacle for most. Moves to expand vaccination must be accompanied by international negotiations to ensure that countries using demonstrably safe vaccines with adequate monitoring will not lose access to export markets.

WHAT SHOULD THE INDUSTRY HAVE ON THEIR RADAR?

- 1. Over-production:** The bird flu has resulted in very high egg prices—and in turn high revenue. After the outbreak of 2015, the market essentially collapsed because producers were using those funds to expand their operations.
- 2. Demand destruction (particularly as it relates to egg products):** This goes for both the US and European markets. In the first year of the bird flu, the world was grappling with supply-chain issues, so food manufacturers weren't really exploring egg alternatives in their formulations. But now that things have calmed down to some degree, we may start to see some more demand destruction seep in.
- 3. Cage-free initiatives in the US:** Proposition 12, which mandated that all eggs sold in California come from cage-free housing, is being challenged in the Supreme Court. If that gets overturned, it means that producers would have spent billions on converting, with no mandates in place to support it.
- 4. The arrival of HPAI in South America:** Will the virus make it over the Andes or through the Amazon and reach Brazil? If it does, how will China, the biggest destination for Brazilian poultry exports, react?
- 5. Global grain production:** With an increase expected in grain production in Europe and globally in 2023 and 2024, grain stocks could grow, resulting in a decline in grain prices. The development of crops and the weather in the main producing region must be monitored by the animal feed industry.

