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The HPAI Stakes are Higher This Time



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Key Points:

- Seven years after the last outbreak, Highly Pathogenic Avian Influenza (HPAI) emerged again in 2022 in U.S. commercial poultry flocks. More than 40 million birds have been depopulated, disrupting supplies of eggs and turkey in particular.
- The shock to domestic markets has been more severe than in the 2014-15 outbreak, which is considered the largest HPAI outbreak in history. Despite somewhat smaller flock depopulations this time, prices of eggs have nearly tripled and turkey breast meat rose 60%, to record levels.
- The view of poultry-importing countries seems to have changed markedly since the previous outbreaks as HPAI has become more common globally. Instead of blanket export bans, their approach is more measured.
- Due to a variety of factors, including high labor and feed costs, egg and turkey supplies will most likely be slower to rebound and high prices will last longer.

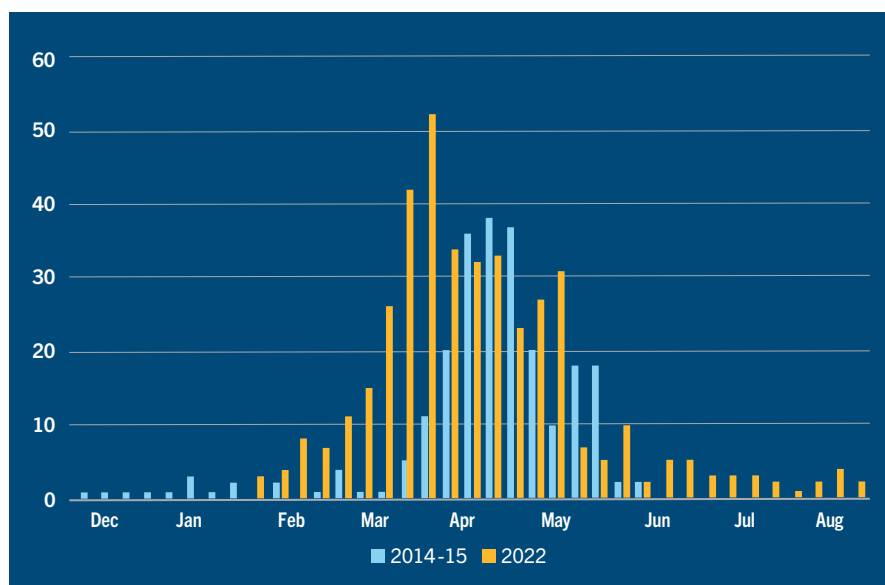
Introduction

Much like what happened during the outbreaks of 2014-15, the 2022 outbreak of Highly Pathogenic Avian Influenza (HPAI) has disrupted U.S. poultry production, processing, and distribution. HPAI was discovered early in the year first in migratory birds in the U.S., and then in February in commercial and backyard poultry flocks. While this outbreak and the last major one share similarities, the biggest differences are in animal protein supplies, trade flows, and market impact.

Since the last outbreak, poultry production grew an average of 2% per year from 2016 to 2020. Reliance on exports has continued to climb, and access to foreign markets remains vital for the U.S. poultry industry. With the stakes that much higher, it is even more crucial to producers, consumers, and other entities throughout the value chain that the production stream is secure from the threat of animal disease.

The sectors HPAI has hit the U.S. hardest this year are egg and turkey producers, and (to a lesser degree) broiler chicken producers, much like in the 2014-15 outbreak. And while the industries have implemented best practices over the past seven years, production methods have not changed significantly. What has changed is the reaction from major poultry importing countries, which have modified restrictions from blanket bans to a more regionalized approach.

EXHIBIT 1: Total Reported Incidents of HPAI Detected in U.S. Commercial and Backyard Flocks, by Week



Source: USDA-APHIS

The HPAI Threat Isn't Disappearing

HPAI is nothing new. It was known as “fowl plague” when first documented in the late 1800s, and infections have been detected in U.S. flocks for more than a century. But with the rapid global increase in concentrated large-scale modern poultry production in the 1980s and 1990s, HPAI became a consequential risk to the industry. The 2014-15 outbreak devastated U.S. producers, with direct costs associated with euthanizing and depopulating 43.2 million laying hens and 7.3 turkeys estimated at \$1.6 billion. Including the associated recovery costs, the total jumped to more than \$3.3 billion. And that does not include the effect on consumers, who saw egg and turkey supplies shrink and prices skyrocket.

A recent study from the European Food Safety Authority describes the 2021-22 season as the worst ever epidemic in Europe, and suggests H5 virus may have become endemic in wild birds. In other words, they expect detections will be year-round, year after year. The current U.S. outbreak of HPAI has led to depopulation of approximately 40 million birds through the first seven months of 2022. As was the case during 2015, table egg production has been most adversely affected with 9.5%

of pre-outbreak flock depopulated to date. Roughly 2.5% of the annual turkey population has been lost.

As temperatures warmed up this summer and wildfowl finished their seasonal migratory journeys, cases of HPAI have largely, but not completely, dissipated (*Exhibit 1*). And while the immediate HPAI concern is dampened, the risk of an outbreak this autumn remains elevated.

Poultry supplies were already under pressure to begin 2022, so participants were already expecting higher prices from strong animal protein demand this spring and summer. However, the burden of the

HPAI supply shocks exacerbated already tight market conditions, sending values skyrocketing.

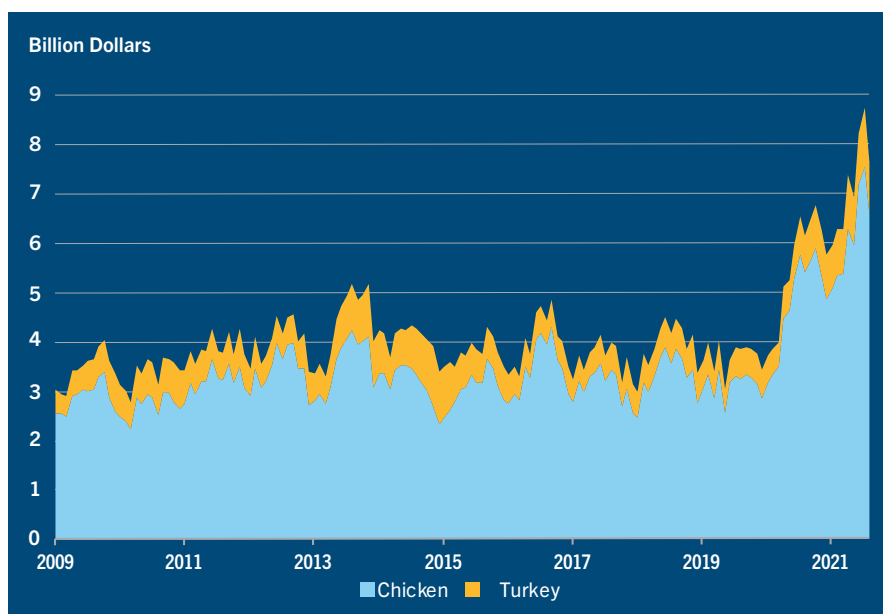
Table egg prices were seeing support during the first quarter 2022 as a result of tight inventories and resurgent post-COVID demand. Starting the year at an already healthy \$1.20/dozen, table eggs in New York wholesale markets rose to well over \$3.50/dozen this summer. Similarly, fresh tom turkey breast meat values have risen well above historic peaks in the aftermath of the last HPAI outbreaks, eclipsing \$6.60/lb. in recent weeks.

Export Dependence Raises the Stakes

While the U.S. broiler flock itself was not significantly affected by disease in either of the major HPAI outbreaks, key export markets restricted access for all U.S. poultry products in 2014-15. At the outset of HPAI in 2014, China immediately closed its borders to U.S. poultry, and heavily export-dependent leg quarter prices fell by 50% between mid-2014 and mid-2015. Chicken paw prices fell by even more. China's markets would not reopen to U.S. poultry until 2019, which occurred as a part of the U.S.-China Phase One trade deal.

EXHIBIT 2: Value of Monthly U.S. Poultry Production

(Based on ready-to-cook volume, and monthly AMS wholesale values)



Source: CoBank calculations using USDA NASS, AMS data

However, when HPAI returned to U.S. commercial flocks this year, the trade impact was much less pronounced. Trade partners set new restrictions at county, state, or regional levels because outbreaks had become commonplace globally, and not coincidentally, because politicians across the globe were concerned about rapidly escalating food prices after the Ukraine invasion.

It is fortunate for U.S. poultry exporters that the world views on HPAI trade restrictions have relaxed because the stakes are higher than ever. The value of poultry exported during 2021 was up 22% YoY, and 35% higher than in 2016. Total U.S. poultry exports was \$5.9 billion in 2021, and is on pace to top that in 2022. With global poultry prices as high as they are today, the cost of lost exports would be much higher than in 2014-2015.

Total valuation of poultry production (*Exhibit 2*) is a function of poultry prices and production. Strength in both domestic and foreign markets have bolstered prices. But production has also grown not only from an expanding harvest, but also improved efficiencies as average live weights are up 6% since 2015. With greater opportunity comes greater risk, should either broiler production or demand falter as a result of HPAI.

What's Ahead?

Egg markets

For an egg market perspective, demand and prices for eggs during both 2014-15 and today were and are strong. By early 2014, a swift rise in fast food breakfast item popularity boosted shell egg prices 19% compared with the prior three-year average. In 2021, shell eggs were not enjoying quite the same premium, but prices were still above average as a result of strong consumer demand in the pandemic's waning days. Both outbreaks led to depopulation of at least 10% of flocks. Recent estimates from USDA suggest the table egg layer flock is

13% (45 million head) below the historical peak of 343 million head in 2019. However, today's flock is more productive, laying about 82-83 eggs per 100 layers today, versus 79-80 back in 2019 (*Exhibit 3*).

In 2015, the U.S. egg industry saw an immediate rise in productivity rates after the mass depopulation, followed by flattening for several years (younger flocks tend to be more productive). We expect a similar trajectory this time, but additional rebuilding efforts will be necessary to fill the supply gap in the coming years. That gap is evident in current table egg prices reported by USDA. Prices for table eggs in New York markets (a standard industry benchmark) are more than three-fold higher than a year ago. While this may seem to be a good thing for those producers lucky enough to have avoided HPAI, the longer-term effects of such dramatic price escalation are removal from restaurant menus, decreased retail promotions, and ultimately a shift downward in consumer consumption that may last many months or even years.



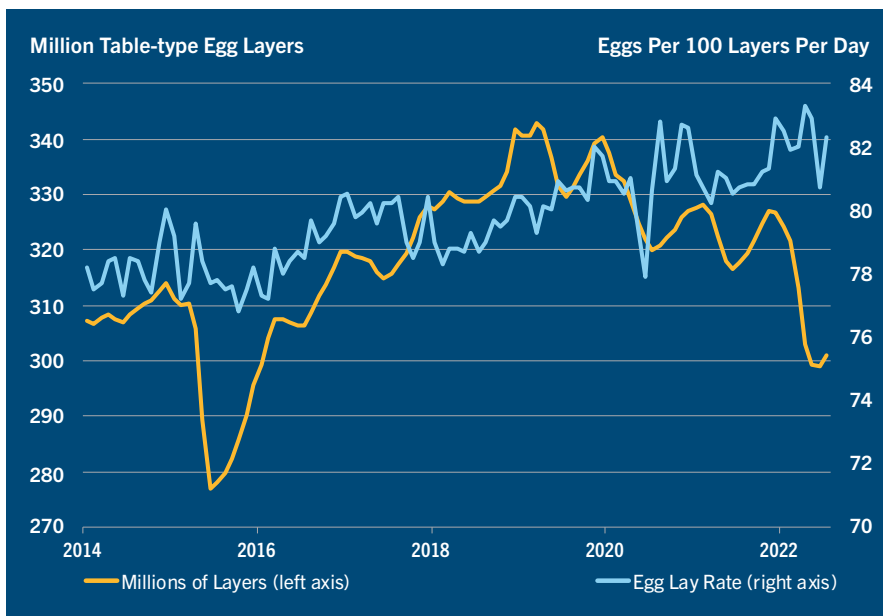
EXHIBIT 3: Egg Layer Inventory and Lay Rate, 2014-2022

Such was the case in 2015, when the market for eggs saw just four weeks of steep advance, before sliding continually lower to establish a new 12-month low in April 2016 (*Exhibit 4*). With feed and other production costs much higher today, we expect producers will be slower to rebuild their flocks this time around. A smaller national layer flock means a smaller egg supply in coming months, higher egg prices, and fewer eggs consumed.

Turkey Market

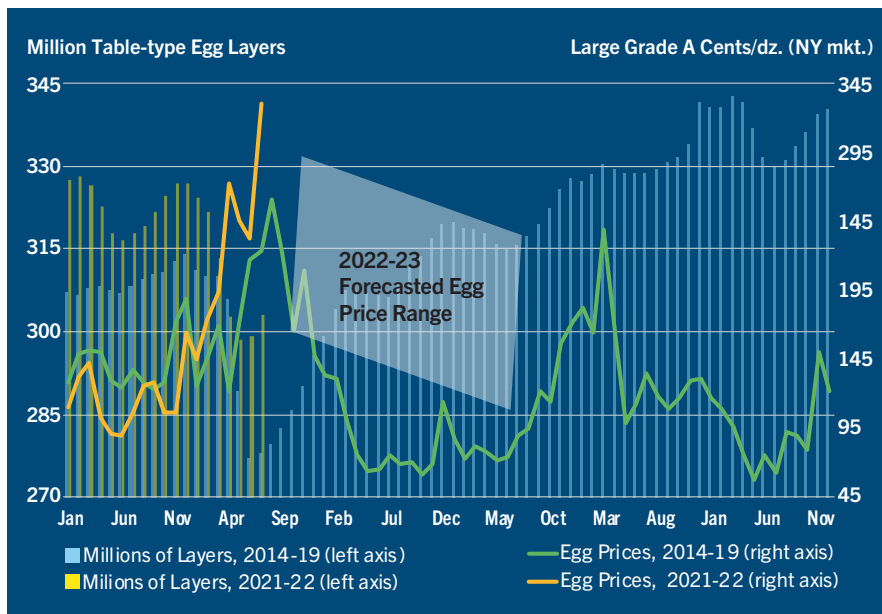
The 1980s were a decade of astounding growth for the turkey industry as consumption of inexpensive, lean, white meat increased by 75% during the decade. By 2014 turkey breast had long established itself as a go-to option for lunch sandwiches and salads. However, by mid-2015, HPAI infections resulted in depopulation of more than 7 million turkeys in U.S. commercial flocks, or about 7.5% of the population, and 3.5% of annual production by weight. And, while whole turkey inventories for Thanksgiving came within 1% of their prior year peak, whole turkey prices skyrocketed to new record high levels, much like what has occurred this year.

Just like with eggs, the market for fresh tom breast meat and whole turkeys alike saw major corrections that lasted for an extended period following the run-ups that occurred in 2015 as restaurants and grocers



Source: USDA NASS

EXHIBIT 4: Egg Prices Expected to Begin Dropping Later in 2022, But Not as Much as After Last HPAI Outbreak



Source: USDA NASS, AMS; CoBank Forecast

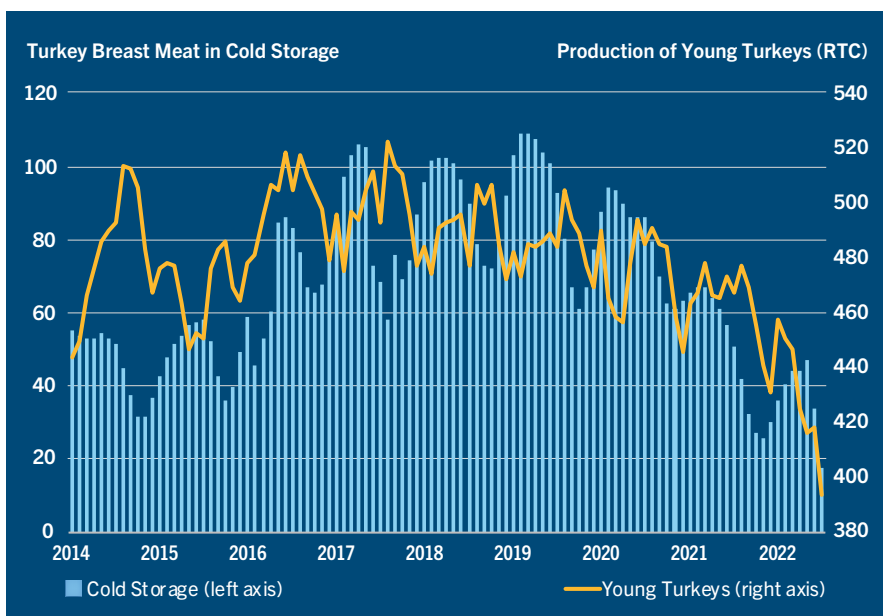


EXHIBIT 5: Turkey Breast Meat Supply (3-month moving average) (in million pounds)

filled the empty turkey-meat stocks with pork, beef, and chicken in the years that followed. While the risk is that turkey production follows a fate similar to what occurred in 2017-19 where demand failed to keep pace with supply, tight supplies of competing meats leave hope that the impact will be less severe this time around.

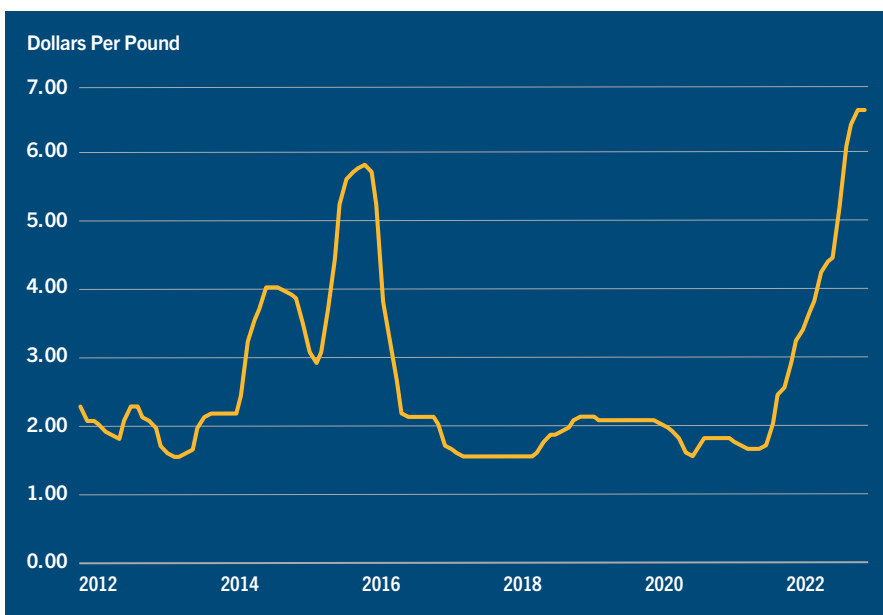
Coinciding with widespread outbreaks in U.S. turkey flocks during 2022, wholesale spot market values for fresh tom breast meat has eclipsed \$6.50 per pound in recent weeks, a level previously deemed unattainable. At the same time, breast meat in cold storage dwindled to a low of just 43 million pounds in April, before safety stocks began building again slightly during May (*Exhibit 5*).

To end May, the inventory of whole turkeys was 7% larger than a year earlier despite slaughter declining 1.5% YoY YTD. Why? Producers responded to lackluster tom markets in 2021 by moving some production to hens, and now are attempting to avoid susceptibility to HPAI by growing for fewer days. This decision to sacrifice weight gain for flock fulfillment has contributed to a smaller inventory of large turkeys (which produce the bulk of turkey breast meat supply). With less breast meat from those large turkeys along with a tight labor supply, the result is higher deli turkey meat prices (*Exhibit 6*).



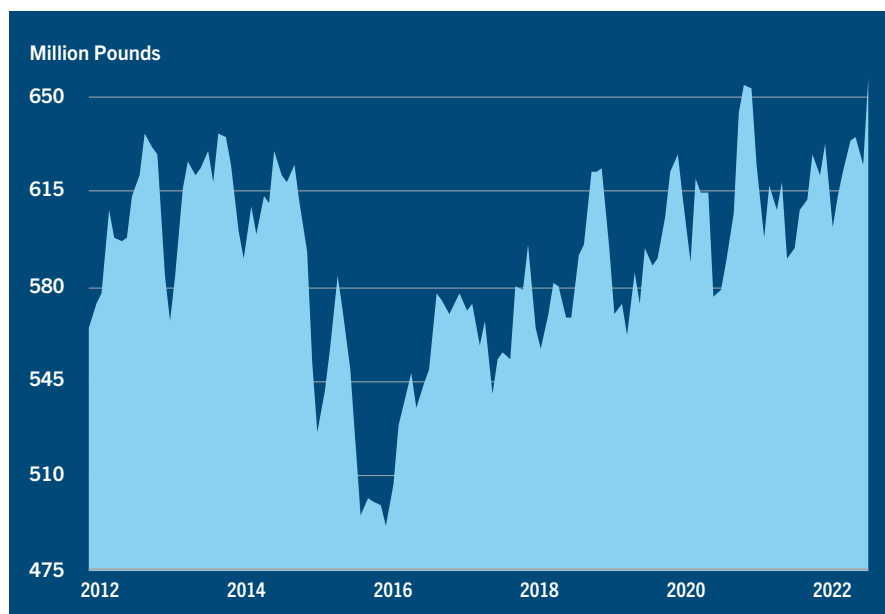
Source: CoBank calculations using USDA NASS, AMS data

EXHIBIT 6: Turkey Breast Prices



Source: USDA

EXHIBIT 7: U.S. Broiler Export Volume (3-month moving average)



Source: USDA

Broiler Market

The HPAI impact to broiler meat production in both 2015 and 2022 appears minimal. But the impact on exports, and prices, is decidedly different this time around. U.S. broiler meat exports declined by nearly 1 billion pounds in 2015. Dark meat prices plunged as key destinations adversely reacted to discovery of HPAI in U.S. flocks by restricting imports. However, export markets appear more favorable for U.S. broiler meat in 2022 (*Exhibit 7*). The current 12 month total is within 1% of volume reported a year earlier and the total for 2022 is on pace to best 2015 volume by more than 1 billion pounds (16%).

So what has changed that has reduced the impact of HPAI on broiler exports? Geographically, the rate of spread has been more heavily concentrated up the East coast and through the Midwest (egg and turkey production areas) and less so in the South (broiler production areas). Additionally, HPAI has become more common throughout the world, especially in areas that supply major destinations, or specifically in major destinations for U.S. poultry. Also, demand for protein is much stronger than it

was in 2015, partially fueled by the substantial decline in China's hog population to African Swine Fever (ASF). Governing bodies have been more selective in how they categorize access, applying a more regional approach to import eligibility.

Conclusion

Due to a variety of factors, including high labor and feed costs, we predict that egg and turkey supply will be slower to rebound from this outbreak and prices slower to drop.

Undoubtedly, this won't be the last HPAI outbreak the U.S. commercial poultry sector will have to manage.

As HPAI typically occurs during the wild bird migratory season and carries to commercial flocks through dust particles, fecal matter, or other foreign objects, stamping out HPAI is particularly complicated – especially in open-air housing systems commonly used in the turkey sector. The methodology for determining flock depopulations is the same as during the 2014-15 outbreaks. APHIS protocols call for depopulating commercial flocks as HPAI is detected, as vaccination is not currently a viable option.

Will we continue down the same road the next time HPAI is discovered in domestic commercial flocks? In terms of depopulation numbers in the U.S. poultry system, egg producers have had the largest impact by head count and the broiler industry the least. This was true in both the 2014-15 event, and the 2022 outbreak. Future outbreaks will likely have similar impact to the U.S. poultry stream. However, whether importers of U.S. poultry will continue to adopt a policy of regionalizing bans on U.S. poultry remains to be seen. ■

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