MISSISSIPPI STATE UNIVERSITY EXTENSION

HPAI Today

The commercial poultry industry is one of the largest agricultural commodities in the U.S. and has been Mississippi's top agricultural commodity for over 20 years, with an economic impact of nearly $28 billion annually. The poultry industry directly employs more than 32,000 people and supports over 66,000 jobs through allied and support roles across the state. This industry is vital to the well-being of Mississippi and the nation.

Highly pathogenic avian influenza (HPAI) is found worldwide in wild bird populations, especially aquatic species. It is causing outbreaks in domestic poultry and dairy cattle across the U.S. and has also been detected in humans and various other mammals. We need to understand the dangers of HPAI, specifically AI virus type A (H5N1), the potential impacts it can have, and what actions we can take to reduce risk and damage.

Since the start of the HPAI outbreak in 2022, the U.S. has lost over 169 million poultry. While not unaffected, the commercial broiler industry has fared better than the egg layer industry, which has taken most of the losses, accounting for nearly 75 percent of domestic poultry losses.

Part of the difference lies in how the table egg and broiler industries are structured. A broiler complex relies on private contract producers to raise poultry to a specific weight, and these farms are spread out over a large geographic area. Depending on the desired weight, the average broiler farm may have about 100,000 to 200,000 birds, with a growth period of four and a half days to nine weeks.

In contrast, a table egg complex is usually centered around an egg processing facility, with much higher bird counts, sometimes reaching into the millions. Egg layer pullets may take 17 to 19 weeks to reach sexual maturity and start laying, but the eggs they produce may not meet the shell egg standards required for grocery stores. It could take an additional four to five weeks before they are laying marketable eggs.

Detection

In March 2024, HPAI H5N1 was detected in U.S. dairy cattle for the first time and has now been found in over 1,080 herds across 17 states. Although initial transmission came from direct contact with wild birds, bovine-to-bovine transmission has become apparent both within and between herds. The movement of infected cows has been identified as a factor contributing to the disease's spread. Unlike HPAI in birds, dairy cattle show low morbidity and mortality rates. Most affected cattle recover within seven to 14 days with proper care. Cows in lactation are the most impacted, displaying clinical signs such as reduced appetite, decreased milk production, and thickened or discolored milk.

HPAI has also been observed in various mammals around the world, including foxes, skunks, cats, minks, sea lions, seals, and otters. Mammals can become infected by eating or coming into contact with infected birds. They may become severely ill, sometimes fatally, and can display neurological signs such as tremors, seizures, disorientation, and respiratory problems. Some mammal-to-mammal transmission is believed to have occurred, but most infections result from spillover events due to contact with birds.

Control Strategy

When a poultry flock contracts HPAI, the control strategy to prevent its spread is to quarantine, test to confirm the presence of the virus, and begin depopulating all birds on the farm. The U.S. Department of Agriculture (USDA) has faced criticism for euthanizing birds in every house on a farm when only one house was infected. However, efforts to save unaffected birds have failed, as the other houses contract the virus within seven to 10 days.

After depopulation, birds are disposed of on the farm through in-house or outside composting or burial. An immediate control zone is established around the infected farm, with surveillance and testing of birds within the

zone. Bird movements are suspended until the virus is contained, and the farm must be cleaned, disinfected, and retested before new chicks are introduced. Since more layers are concentrated in central locations, outbreaks are often more devastating for the layer industry. Coupled with inflation, the loss of commercial layers due to HPAI in recent years has been the main factor driving up egg prices, as seen in the past.

One of the most effective tools for preventing HPAI and other pathogens in poultry and livestock is a well-structured and strict biosecurity program (BSP). The commercial poultry industry has trained employees and producers for nearly two decades on the importance of BSP practices, while backyard and small flock producers are gradually beginning to adopt them. Following strict biosecurity may sometimes feel inconvenient, but it is essential for keeping flocks safe. Key practices include limiting traffic to your farm, restricting your own travel to essential locations, wearing dedicated footwear only for your coop, barns, or farm, using disinfectant foot baths, and practicing good hand hygiene. If you visit other farms or places with poultry or livestock, shower and change clothes before returning to your flock or herd.

Vaccination

In February 2025, the USDA issued a conditional license to produce an avian influenza vaccine, intended to be stockpiled for emergency use if necessary to protect the nation's food supply. While some discussions exist about using vaccines in specific areas of the poultry industry, widespread vaccination could hurt export markets, as some countries ban imports of vaccinated poultry products. In 2024 alone, poultry meat and products were valued at $5.5 billion, with eggs and related products worth $750 million. Currently, commercially approved HPAI vaccine is not available for U.S. poultry or cattle, making strong biosecurity measures the primary defense.

Human Contact with HPAI

Concerns about crossover to humans are understandable, given reports of human cases in U.S. dairy and poultry workers. So far, 70 confirmed human cases have been reported, including one death. Of these, 93 percent occurred among commercial dairy workers (41 cases), and 24 involved commercial poultry workers who had close contact with livestock. There were two cases linked to exposure to other animals such as backyard flocks, wild birds, or other mammals, and three cases where the exposure source remains unknown. The single fatality involved a patient over 65 with underlying health issues who had contact with backyard poultry and wild birds. The CDC reports that the risk to human health remains very low, but caution is advised. Poultry should be treated as livestock—avoid unnecessary handling, hugging, kissing, or bringing them into your home. People with weakened immune systems should take extra precautions, and workers handling infected animals should wear proper protective equipment. Currently, there is no human vaccine for avian influenza.

HPAI Affecting Poultry and Other Animals

Infected poultry are euthanized and disposed of on farms, never entering the food supply. Before processing, blood samples are tested for avian influenza. To be safe, poultry and eggs should always be cooked to an internal temperature of 165°F. Beef dishes should also be cooked properly—ground beef to 160°F, whole cuts to 145°F with a 3-minute rest. Since it's uncertain whether avian influenza can spread through raw milk, always choose pasteurized dairy products. Prevent cross-contamination in your kitchen by keeping raw meats separate from other foods. At least three cat deaths in the U.S. have been linked to consuming raw pet foods. Pet owners are advised to avoid feeding their animals raw meat products from uninspected facilities. These practices not only address HPAI concerns but also help prevent other foodborne illnesses.

If you keep poultry commercially or at home, you must stay vigilant and monitor their health. The incubation period for HPAI can range from two days to two weeks, but once symptoms appear, it can spread quickly. Warning signs include sudden high mortality, coughing, nasal discharge, watery or green diarrhea, swelling of the head and neck, purple discoloration of combs, wattles, and legs, decreased egg production, and soft or misshapen eggs.

Backyard flock owners should not panic over a single bird death, but sudden illness or multiple deaths are red flags. If you suspect HPAI, report it immediately. Backyard growers should visit the Mississippi Board of Animal Health website and select report dead birds or call 1-888-646-8731. Commercial producers should contact their field service representative. When handling suspected infected birds, always wear full protective gear, including goggles, a mask, gloves, and coveralls, and follow proper sanitation guidelines.

Summary

HPAI still poses a serious threat to poultry and livestock, with broad economic and food supply effects. Although the challenges are significant, prevention remains our most effective and only option. Strict biosecurity, careful monitoring of flocks and herds, safe food handling, and prompt reporting of suspected cases are crucial steps that every poultry and dairy producer and bird owner must take. By working together and staying alert, we can help protect our flocks, defend our agricultural industry, and ensure a secure food supply for the future.

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