

AVIAN HEALTH INTERNSHIP STATEWIDE: COLORADO

Aracely Diaz
DVM Candidate '25

Heather Reider
Avian Health Coordinator
Ragan Adams, MA, DVM
Veterinary Extension Specialist, CVMBS

PROJECT INTRODUCTION

This year, the United States has had a nationwide outbreak of Highly Pathogenic Avian Influenza (HPAI), affecting nearly 47 million birds since February 2022. As of September 27, 2022, there have been 478 confirmed flocks across 40 states. Commercial and backyard flocks have both been impacted by this outbreak and have had to increase biosecurity measures in attempt to stop the spread.

HPAI arises from infections of Low Pathogenicity Avian Influenza (LPAI) which undergo mutations. The reservoir species for LPAI are wild aquatic birds, many of which partake in long distance migrations which means this virus can spread over long distances. These wild birds are often asymptomatic and shed the virus through feces. As a result, domestic poultry are infected via contaminated water, contaminated surfaces, fomites, or direct contact with infected waterfowl.

There is high morbidity and mortality in poultry flocks infected with HPAI. The virus undergoes a systemic replication and causes death in various visceral organs, the brain and skin. Typically, infected birds are found dead as the first sign of an outbreak.

Due to the extent of this outbreak, county fairs had to cancel or modify their 4H poultry shows this year. This internship provided the opportunity to conduct a survey and document how 4H poultry shows were proceeding in the face of HPAI risk. Documentation is important to understand what measures were taken to prevent the spread of HPAI, what worked best, and how a future outbreak can be handled more effectively.

INTERNSHIP GOALS

- To document how county fairs were proceeding with their 4H poultry shows given the risk of HPAI.
- To have meaningful conversations with backyard flock owners about biosecurity practices to prevent spread of HPAI and other diseases.
- To obtain hands-on experience working with poultry and gain an understating of the poultry industry by fully immersing as an NPIP certified field tester to answer commonly asked questions regarding poultry husbandry and biosecurity practices.

HOW DOES THIS APPLY TO YOUR EDUCATION

Disease outbreak and prevention in any species is an integral part of a veterinarian's duty. Through my first-year courses I learned the basics of poultry husbandry, biosecurity practices in a commercial setting, and diseases affecting poultry. This internship provided the opportunity to learn the basics in greater depth and gain real-world experience testing flocks and providing my community with information on how to protect their birds.

WHAT YOU DID

A survey questionnaire was sent out via email to the extension representatives of each county of Colorado in order to gain an understanding of what measures were taken by the 4H poultry shows in Colorado. Data was collected and analyzed.

As a certified field tester for the National Poultry Improvement Plan (NPIP), our team visited backyard flocks in various counties of Colorado. We tested poultry in the field for Typhoid-Pullorum via an agglutination test and took a swab to test later in the lab for Avian Influenza. Given the outbreak this year, biosecurity was especially important and taken very seriously. All clothing, boots, and equipment, including cars, had to be cleaned before visiting any other property with birds. Conversations with owners included questions about their biosecurity practices and ways to improve upon them. Animal welfare conditions were also noted and discussed with owners.

Community outreach was also an essential component in helping educate and prevent the spread of HPAI. Bird swaps, county fairs, and other events where poultry from different flocks come together were initially stopped per the State Veterinarian's orders. However, once the State Veterinarian allowed some of these events to occur, our team did community outreach at these events to talk to anyone who owned birds and spread knowledge about HPAI, the current outbreak, and simple biosecurity practices that everyone can implement to help protect their birds.

Figure 1. (Avian Health Team 2022)



WHAT YOU LEARNED

Out of the thirty-eight surveys sent, we received an 89.5% survey response rate. About 26% of the counties did not hold a 4H poultry show of any kind this year. The other 74% held 4H poultry shows, with 50% of those modifying the event this year. Modifications included the use of stuffed animals instead of live poultry, hosting a virtual poultry show, and the use of posterboard presentations (Table 1). The classes of birds showed this year were breeding, market, and market terminal.

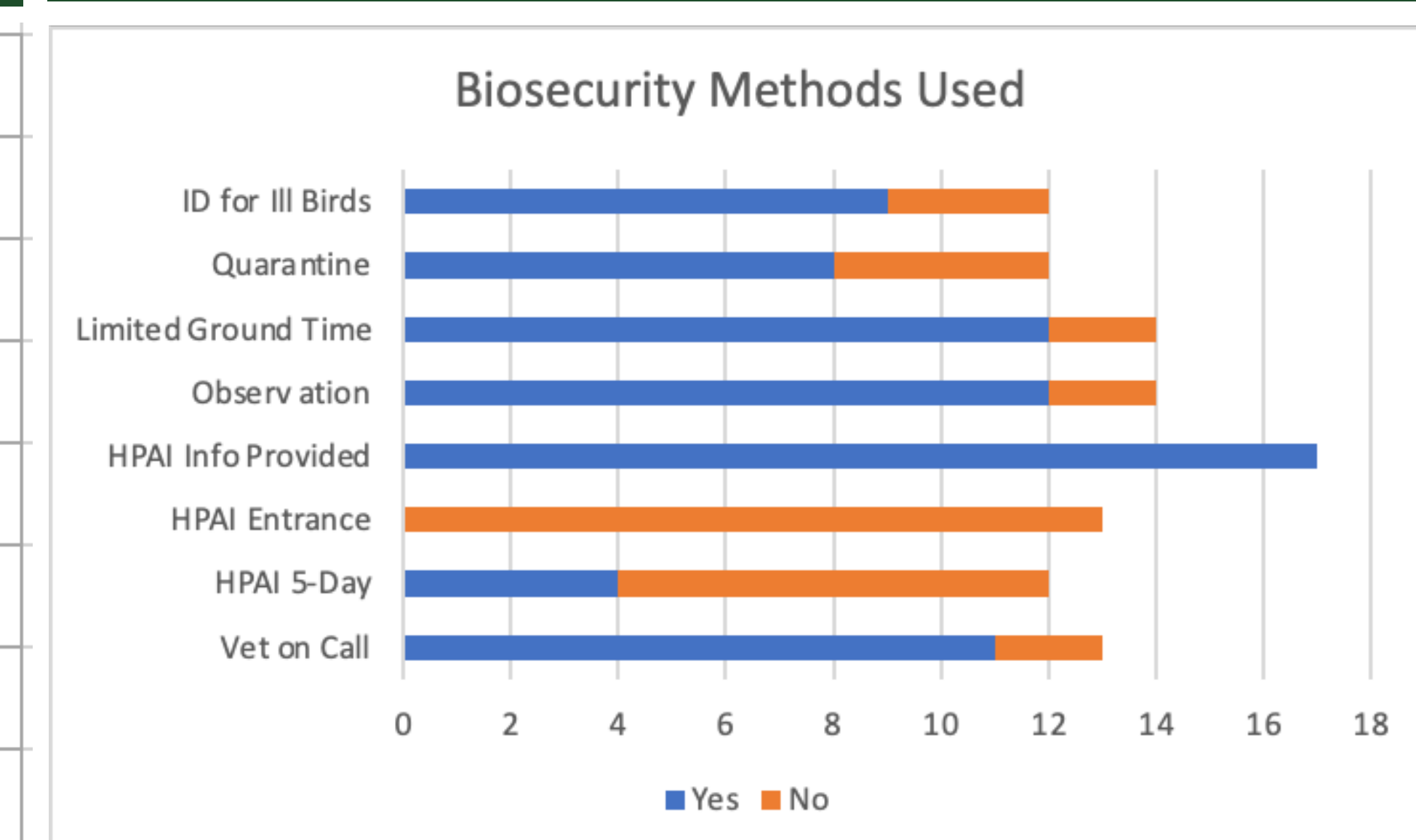
For the counties hosting in-person poultry shows, several biosecurity methods were enforced to help prevent the spread of disease. All counties provided participants with information regarding HPAI. Although no one required testing for HPAI upon entrance of the show, about 33% of the counties required testing 5 days before the show and about 86% required observation of the birds while on county fair grounds and had a veterinarian on call. Additionally, about 86% of counties limited the amount of time birds were allowed on grounds, with some counties setting a strict 1 hour limit and others allowing them on grounds for up to 1-2 days (Figure 2).

Ultimately, all poultry owners showed concern about the risk of HPAI and were receptive to advice given on biosecurity practices. This outbreak has affected many commercial and backyard flocks across the nation and continues to be of great concern, especially with fall migrations occurring. Education and implementation of biosecurity practices are essential to preventing the spread of HPAI and other diseases.

Table 1. (Results)

Type of Show	# of Counties
In Person	12
Poster	3
Virtual	6
Stuffed Animals	3
No Poultry Show	10
No Response	4
Total	38

Figure 2. (Biosecurity methods used)



NEXT STEPS

A follow up survey is suggested to observe how the modifications made to the 4H poultry shows this year impacted the experience for participants and organizers. It would also provide information on what techniques worked best, what further implementations are needed, and what should be avoided, thus allowing a more efficient and organized response if a future outbreak were to occur.