

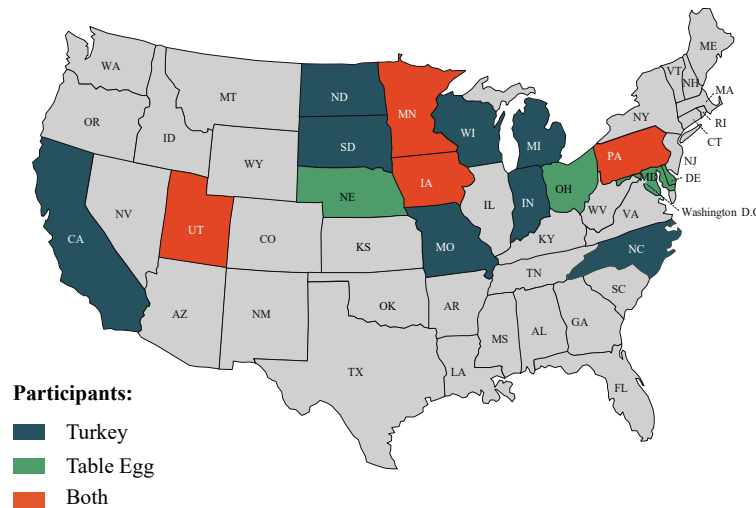
Highly Pathogenic Avian Influenza: Challenges in Implementing Biosecurity Practices for Commercial Turkey and Table Egg Producers

February 2024

INTRODUCTION

Highly pathogenic avian influenza (HPAI) is a serious disease that is highly contagious and often fatal to chickens and turkeys. The U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) conducted two studies to investigate potential risk factors for introducing the HPAI virus onto farms in 2022. One study focused on commercial turkey farms raising meat turkeys. The other study focused on commercial table egg farms, including breeders, pullet farms, and table egg layer farms. For the turkey study, 125 farms from 12 states participated. Case turkey farms were confirmed positive for HPAI between January and October 2022. For the table egg study, 40 farms from 8 states participated. Case table egg farms were confirmed positive for HPAI between February and September 2022. For both studies, control farms were selected from the same states as case farms, but controls did not have HPAI during the same period (Figure 1).

Figure 1. States that Participated in the Turkey and Table Egg Studies



APHIS previously reported risk factors for HPAI introduction on to commercial turkey farms and table egg farms, based on the findings of these studies. This report presents the results of producer-provided information on biosecurity challenges related to feed, personnel, and equipment. The purpose of the report is to provide a national view of these challenges, to increase awareness of the issues on a national level, and possibly identify areas to focus biosecurity improvements to reduce potential HPAI risk on commercial farms.

To better understand industry perspectives on areas of biosecurity that may be difficult to implement, both studies asked participants how challenging it is for producers to achieve various biosecurity items (not at all, slightly, somewhat, quite, or extremely challenging). The infographics in Figures 2–7 present the combined results for all participating turkey and table egg farms (cases and controls). Due to small sample sizes in some of the response categories, the "quite" and "extremely" challenging levels were combined in the analysis. In the following graphs, the numbers may not add up to 100 due to rounding.

TURKEY PRODUCER BIOSECURITY CHALLENGES

Figure 2. Feed Biosecurity Challenges for Turkey Farms

Summary of Figure 2:

- Slightly more than one-fifth of respondents reported that keeping feed safe from rodents was “somewhat” to “extremely” challenging (21.7%).
- Very few respondents said keeping feed safe from wildlife was “quite” or “extremely” challenging (1.6%).
- More respondents reported that keeping feed safe from wildlife was “not at all” challenging (71.8%) compared to respondents who reported keeping feed safe from rodents was “not at all” challenging (54.0%).

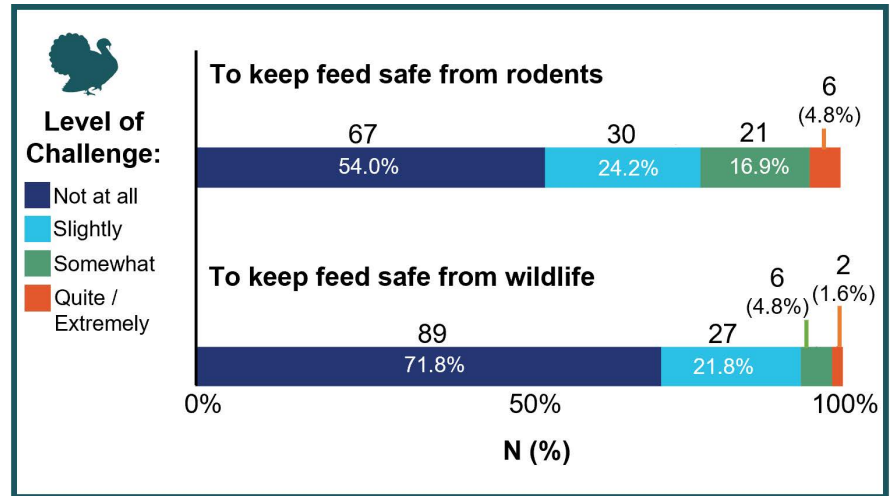
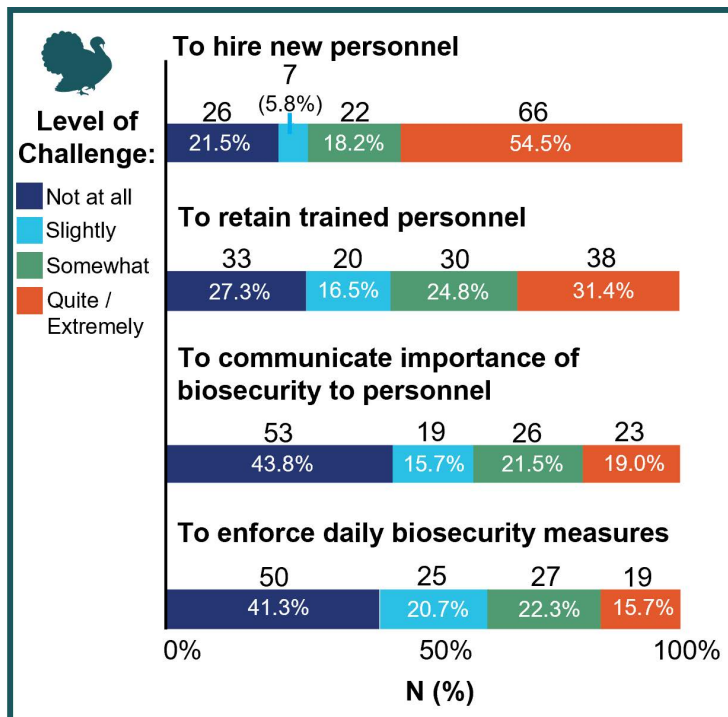


Figure 3. Personnel and General Biosecurity Challenges for Turkey Farms



Summary of Figure 3:

- A little over half of the turkey study respondents reported that hiring new personnel was “quite” or “extremely” challenging (54.5%).
- Almost one-third reported that retaining trained personnel was “quite” or “extremely” challenging (31.4%).
- Fewer respondents indicated that communicating the importance of biosecurity to personnel (19.0%) or enforcing daily biosecurity measures (15.7%) were “quite” or “extremely” challenging.

Figure 4. Vehicle and Small Equipment Biosecurity Challenges for Turkey Farms

Summary of Figure 4:

- More respondents reported that keeping shared small equipment cleaned and disinfected was “not at all” challenging (71.8%) compared to respondents who reported keeping shared vehicles cleaned and disinfected was “not at all” challenging (55.1%).
- Only a small percentage of study participants reported that keeping shared vehicles (12.7%) and keeping shared small equipment cleaned and disinfected were “quite” or “extremely” challenging (12.0%).

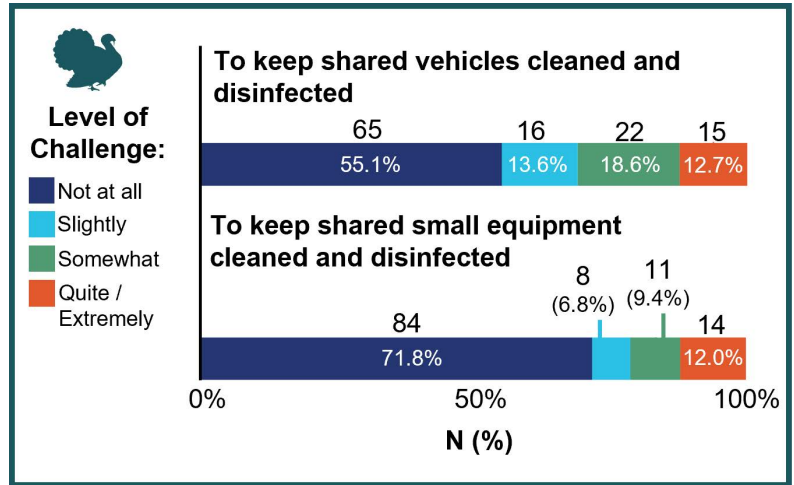
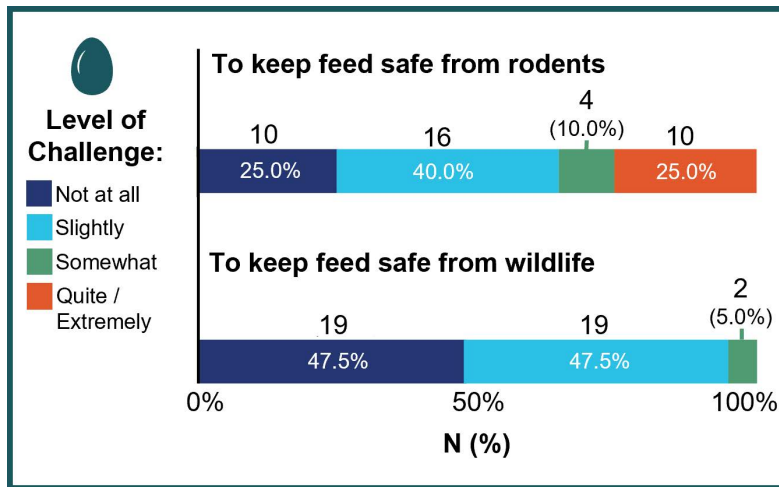


TABLE EGG PRODUCER BIOSECURITY CHALLENGES

Figure 5. Feed Biosecurity Challenges for Table Egg Farms



Summary of Figure 5:

- One-quarter of the commercial table egg study respondents reported that keeping feed safe from rodents was “quite” or “extremely” challenging (25.0%).
- None of the respondents reported keeping feed safe from wildlife was “quite” or “extremely” challenging.
- More respondents reported that keeping feed safe from wildlife was “not at all” challenging (47.5%) compared to respondents who reported keeping feed safe from rodents was “not at all” challenging (25.0%).

Figure 6. Personnel and General Biosecurity Challenges for Table Egg Farms

Summary of Figure 6:

- Slightly more than half of all table egg study participants reported hiring new personnel was “quite” to “extremely” challenging (52.5%).
- Only a small percentage of participants reported retaining trained personnel was “quite” or “extremely” challenging (15.0%).
- Only a small percentage of table egg study participants indicated that communicating the importance of biosecurity to personnel was “quite” or “extremely” challenging (10.0%).
- However, about twice as many reported that enforcing daily biosecurity measures was “quite” or “extremely” challenging (22.5%).

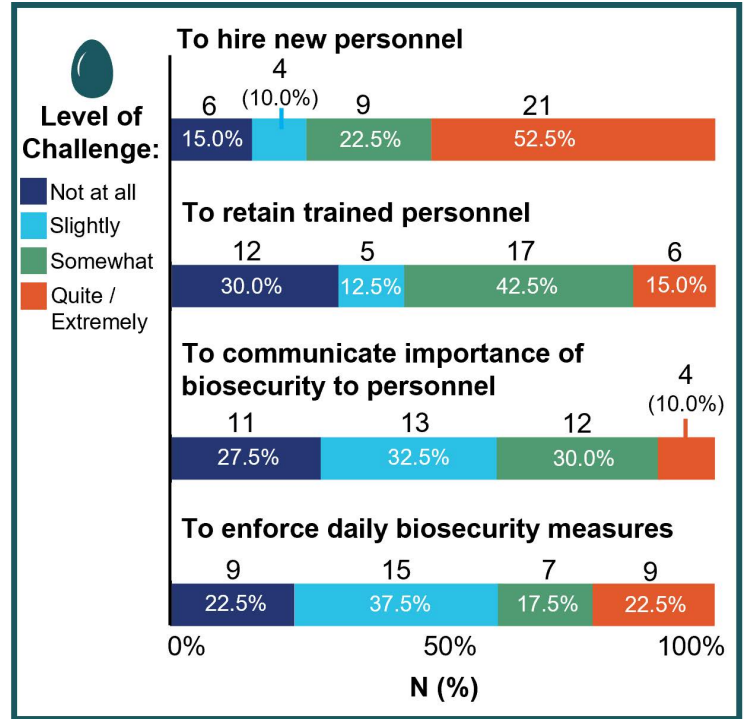
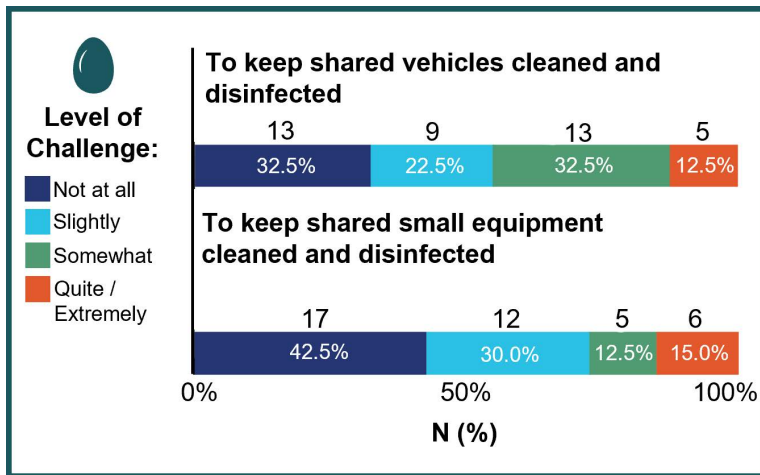


Figure 7. Vehicle and Small Equipment Biosecurity Challenges for Table Egg Farms



Summary of Figure 7:

- About one-third of table egg study respondents reported that keeping shared vehicles cleaned and disinfected was “not at all” challenging (32.5%).
- More than half of table egg study participants reported that keeping shared vehicles cleaned and disinfected was “slightly” to “somewhat” challenging (55.0%).
- Almost half of the participants reported that keeping shared small equipment cleaned and disinfected was “not at all” challenging (42.5%).
- Only a small percentage of respondents said that keeping shared vehicles (12.5%) or keeping shared small equipment cleaned and disinfected (15.0%) were “quite” or “extremely” challenging.

BIOSECURITY CONSIDERATIONS TO ADDRESS CHALLENGES

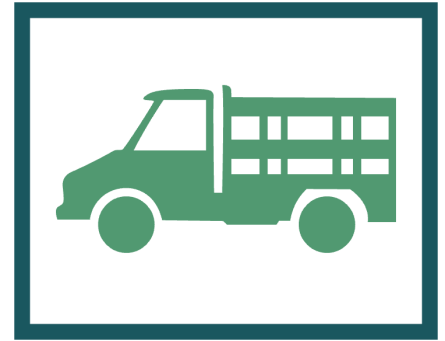
Considering the risk factors identified in the case-control studies and the biosecurity challenges reported by producers as described above, here are a few science-based actions to implement on-farm. The results of these studies may also be used by industry to help support and address the most frequently reported challenges that producers identified on their farms.



Keep feed safe from rodents and wildlife to prevent the transmission of avian influenza and other diseases.



Require personnel to change clothing (including shoes) before moving to a different barn. Assign farm workers to specific barns when possible.



Clean and disinfect shared vehicles and equipment to avoid transferring virus that can cause disease.

RESOURCES



To see infographics regarding this study, please visit [USDA APHIS | Highly Pathogenic Avian Influenza \(HPAI\)](#) or scan the QR code and look under Resources for Producers.

Green, A. L., Branam, M. A., Fields, V., Patyk, K. A., Kolar, S. K., Beam, A., Marshall, K. L., McGuigan, R. E., Vuolo, M., Freifeld, A., Torchetti, M. K., Lantz, K., & Delgado, A. H. (2023). Investigation of risk factors for introduction of highly pathogenic avian influenza H5N1 virus onto table egg farms in the United States, 2022: a case-control study. *Frontiers in Veterinary Science*, 10. <https://doi.org/10.3389/fvets.2023.1229008>

Patyk, K. A., Fields, V., Beam, A., Branam, M. A., McGuigan, R., Green, A., Torchetti, M. K., Lantz, K., Freifeld, A., Marshall, K. L., & Delgado, A. H. (2023). Investigation of risk factors for introduction of highly pathogenic avian influenza H5N1 infection among commercial turkey operations in the United States, 2022: a case-control study. *Frontiers in Veterinary Science*, 10. <https://doi.org/10.3389/fvets.2023.1229071>