

Final Report for the 2016 Outbreak of Highly Pathogenic Avian Influenza (HPAI)/ Low Pathogenicity Avian Influenza (LPAI) in Indiana

September 29, 2016



USDA Animal and Plant Health Inspection Service
Veterinary Services
National Preparedness and Incident Coordination

Nature of Disease

- Avian influenza (AI) is a viral respiratory disease that infects all avian species.
 - AI is a common disease, but it frequently changes or mutates.
- Based on the severity of illness, the disease is classified as either HPAI or LPAI.
- AI viruses are named by two groups of proteins:
 - hemagglutinin and neuraminidase,
 - e.g., H5N2 or H7N8.

Low Pathogenicity Avian Influenza

- LPAI is routinely detected in wild birds and usually causes only mild signs of disease, if any.
- In poultry, LPAI is regulated and requires attention because of its ability to mutate into a highly pathogenic form if allowed to circulate, as demonstrated in Indiana.



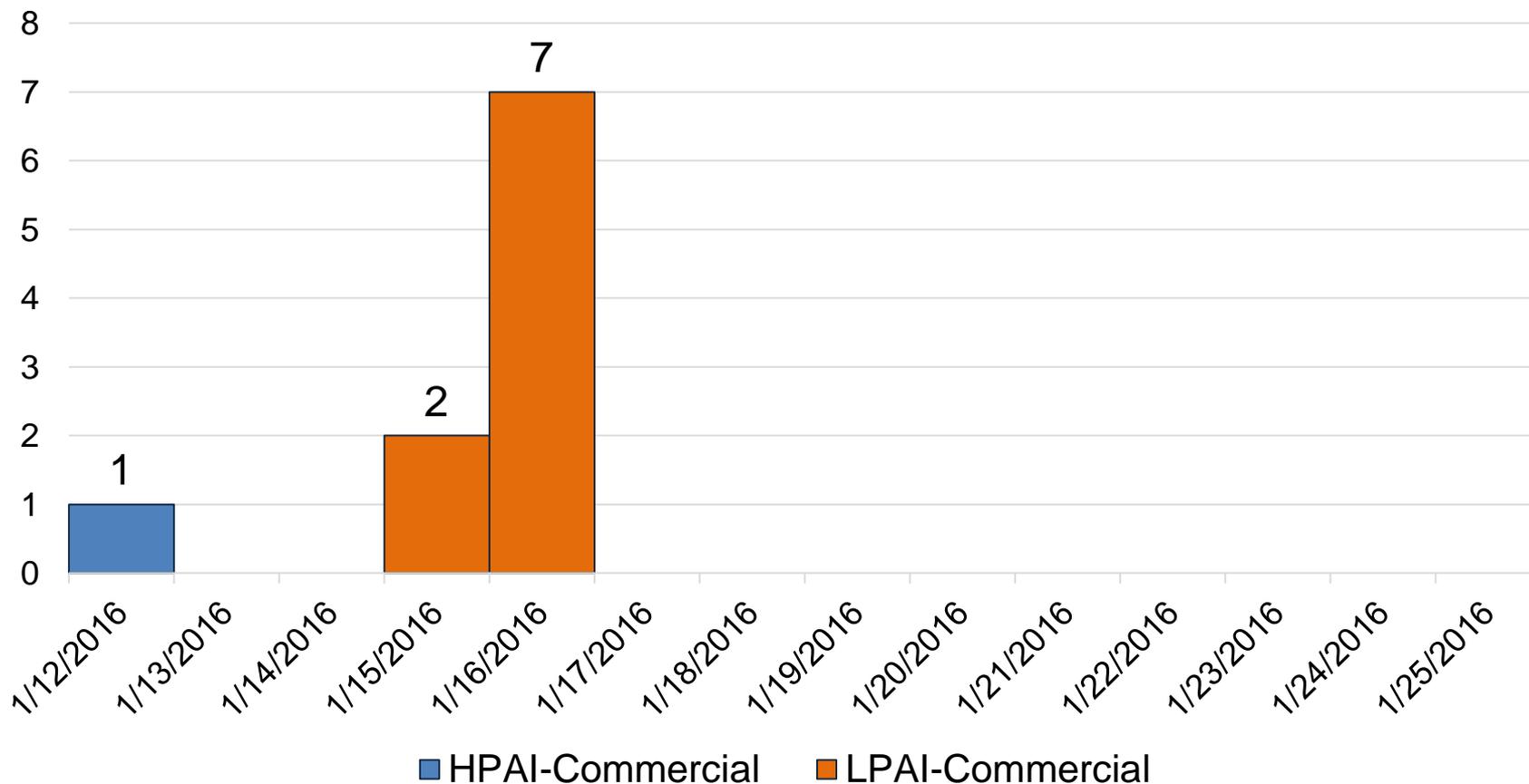
Incident Timeline

- **January 14, 2016:** National Animal Health Laboratory Network (NAHLN) Lab has presumptive positive HPAI result based clinical signs in an Indiana commercial turkey flock.
- **January 15:** National Veterinary Services Laboratories (NVSL) confirmed HPAI on the premises and identified the virus as H7N8.
- **January 16:** By the 16th, an additional 9 premises had been identified as presumptive positive by a NAHLN Lab.
- **January 17:** NVSL confirmed LPAI H7N8 on 8 of these premises (virus was not isolated on the 9th premises).
 - Additionally, 2 Dangerous Contact (DC) Premises—one commercial turkey facility and one commercial chicken layer—were also depopulated.

Incident Overview

- In all, over 414,000 birds were depopulated or died from HPAI.
- Given the scope of the 2014–2015 HPAI outbreak, the Indiana 2016 incident provided an opportunity to test improved processes and procedures that had been implemented.
- While challenges remain, the lessons learned from the 2014–2015 outbreak helped USDA Animal and Plant Health Inspection Service (APHIS), Indiana State Board of Animal Health (BOAH), and industry mount an effective and rapid response to the HPAI/LPAI incident.

Total Incidence of HPAI/LPAI in Indiana by Day (Based on Date of Clinical Signs or First Presumptive Positive Date)

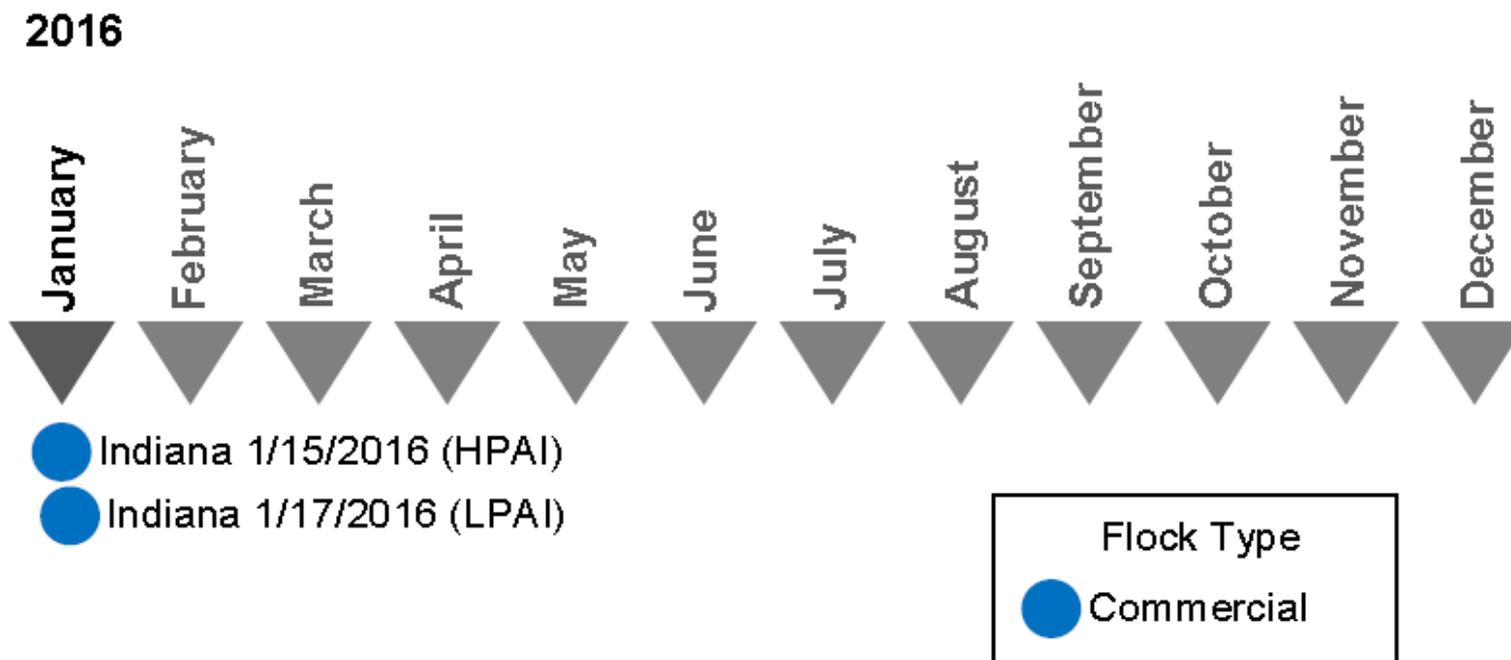


H7N8 HPAI and LPAI Detections in Dubois County, IN



Note: Map produced during the incident by the USDA APHIS VS Center for Epidemiology and Animal Health.

First Detection by Flock Type in Indiana by NVSL Confirmation Date¹



¹ NVSL confirmation for this incident is when pathogenicity was determined by NVSL.

Transmission

- USDA APHIS, in collaboration with Indiana State BOAH and industry partners, conducted epidemiological investigations, including the following:
 - field-based epidemiological surveys, and
 - geospatial analysis.
- Risk factors identified included: distance to dead bird disposal, distance to litter composting, and visitors entering barns.
- Findings overlapped those from the 2014–2015 outbreak.

Transmission in Wild Birds

- H7 influenza A viruses are known to circulate in low pathogenicity forms among wild waterfowl.
- Several farm owners had seen wild birds prior to the outbreak.
- However, approximately 300 samples were collected, primarily in wild birds (and a few wild mammals), on or near Infected Premises in Indiana with no conclusive results.



For more information, please see the USDA APHIS *Epidemiologic and other Analyses of Indiana HPAI/LPAI-Affected Poultry Flocks* from the Center for Epidemiology and Animal Health.

Organizational Response

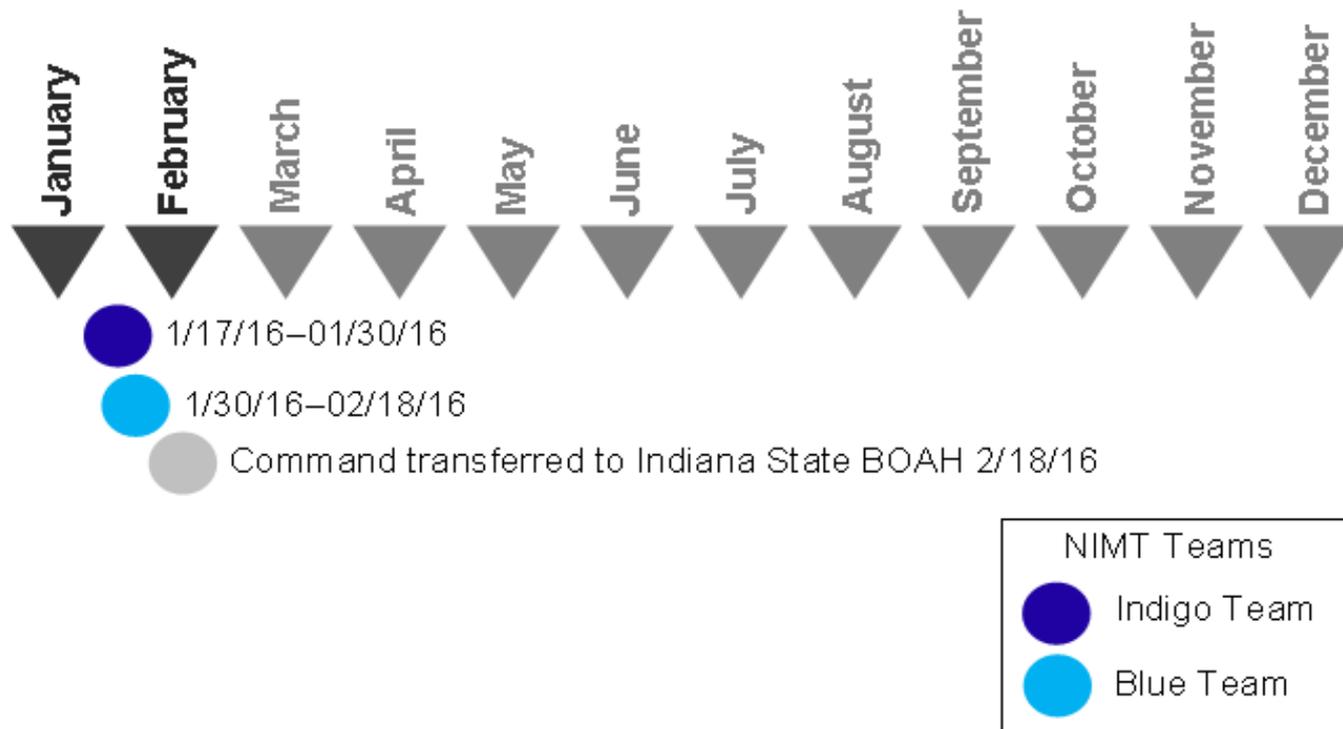
- As soon as HPAI was suspected, the Incident Coordination Group (ICG) was ramped up.
- **January 17, 2016:** An APHIS Veterinary Services (VS) National Incident Management Team (NIMT) (Team Indigo) deployed to Indiana.
- At the height of response operations, more than 500 personnel (including APHIS, State, local, and contracted personnel) were deployed.

Personnel

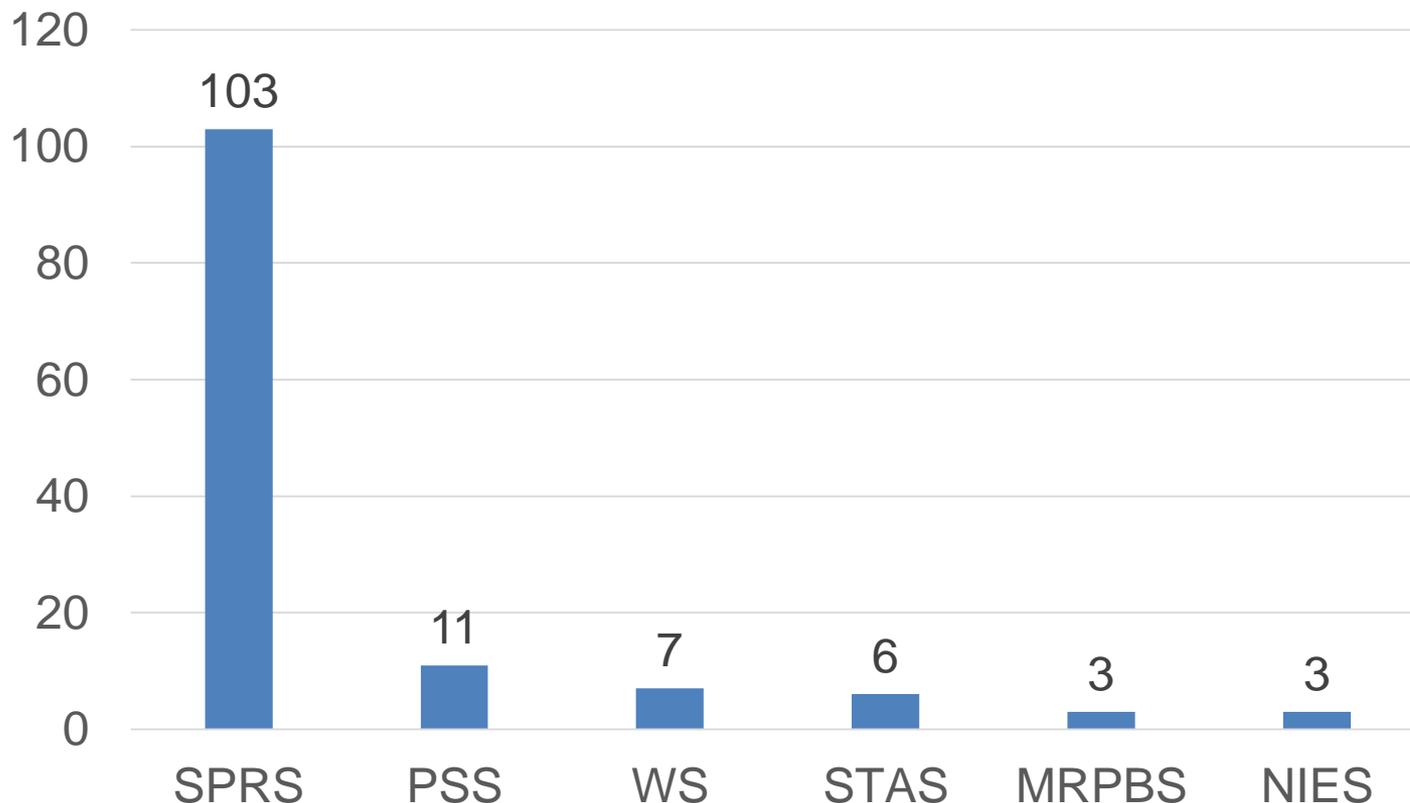
- APHIS VS NIMTs were deployed to Indiana as part of the unified Incident Command to support State and local personnel.
- For the entire incident, there were 133 total deployments of APHIS personnel.
 - 129 individuals deployed.
 - 72 additional people were assigned to work as part of the ICG either remotely or at APHIS hubs.
 - Deployments in over 30 different positions, particularly as Veterinary Medical Officers and Animal Health Technicians.
 - Includes term-hires, who made up approximately 42% of Surveillance, Preparedness, and Response Services (SPRS) deployments.

APHIS National Incident Management Team Rotations

Indiana 2016

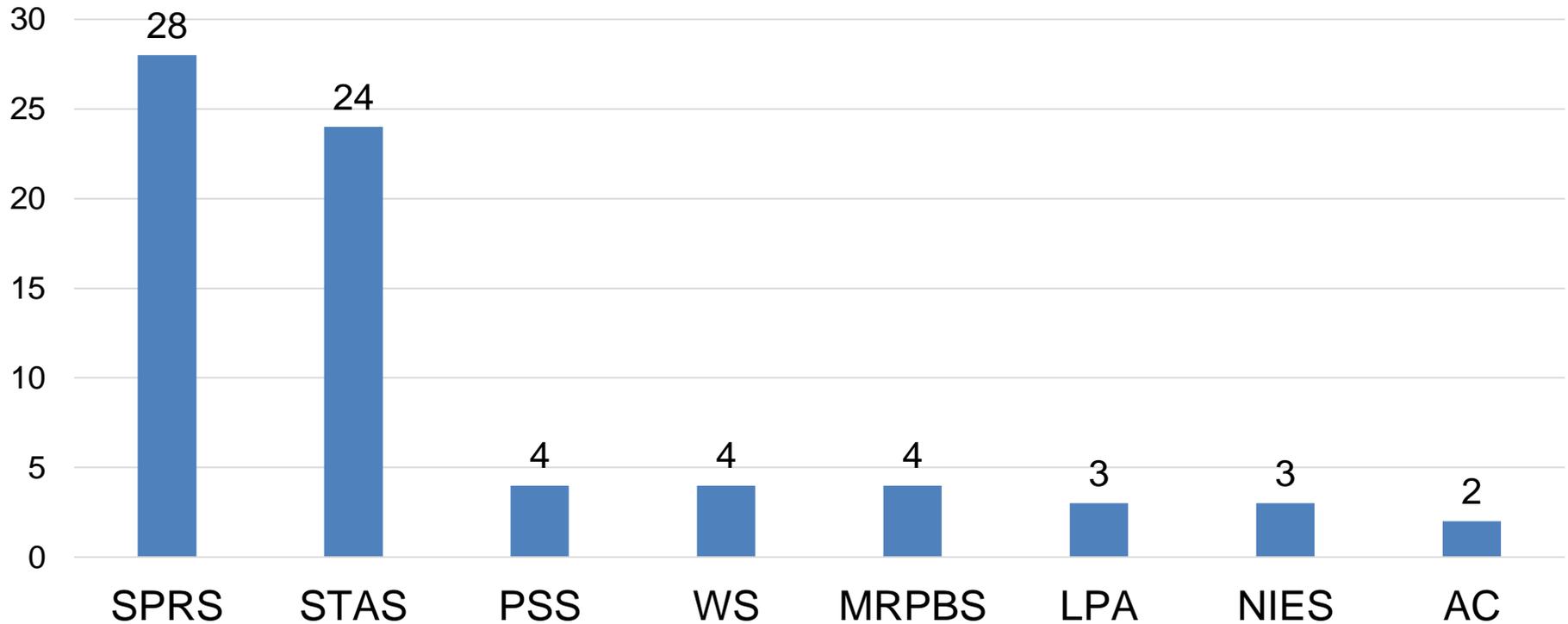


Total Number of APHIS Personnel Deployed to the Field by Organizational Unit



Note: SPRS = Surveillance, Preparedness, and Response Services; PSS = Program Support Services; WS = Wildlife Services; STAS = Science, Technology, and Analysis Services; MRPBS = Marketing and Regulatory Program Business Services; NIES = National Import Export Services.

Total Number of APHIS Personnel Assigned to Support the Incident at APHIS Hub or Home Location, by Organizational Unit

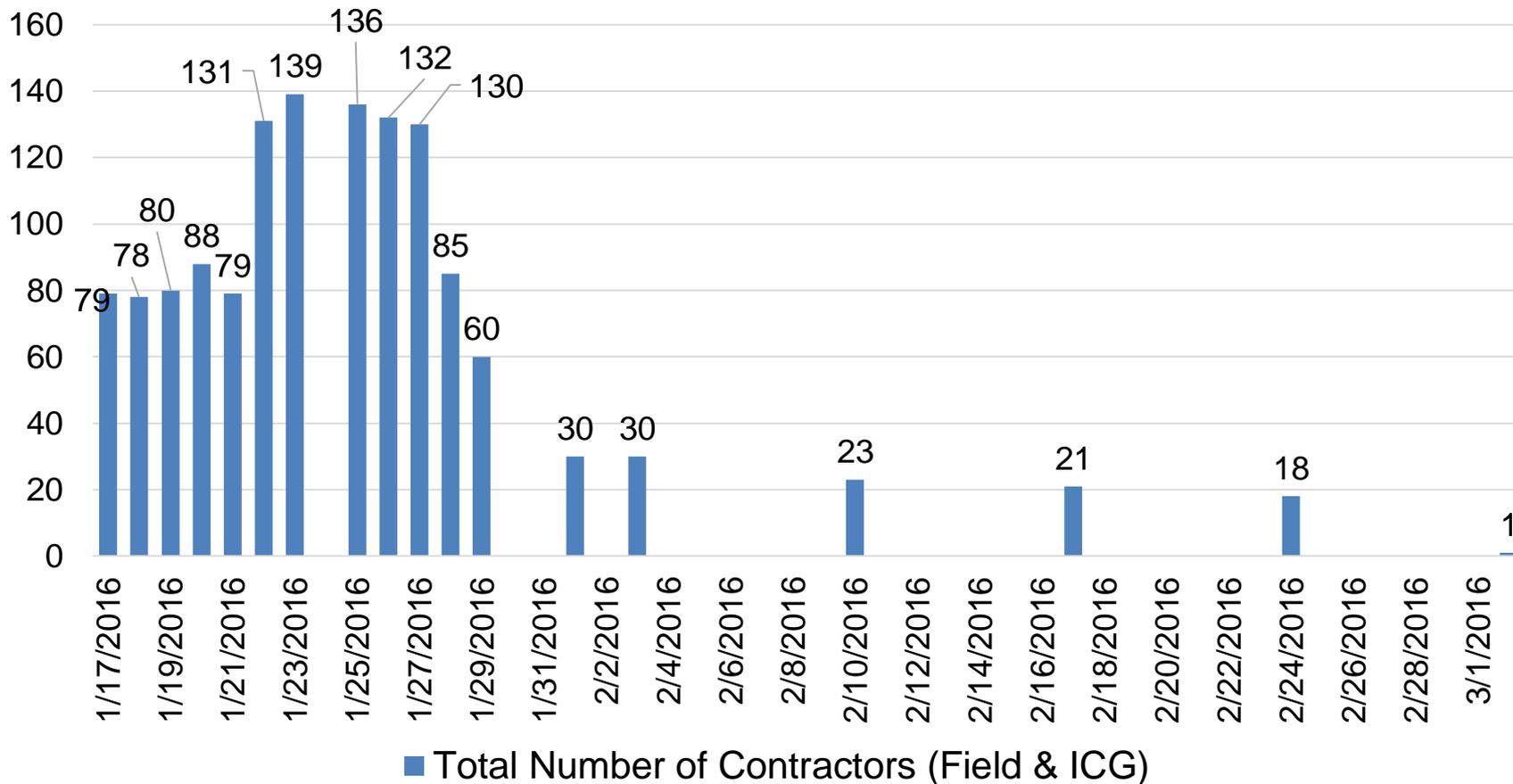


Note: SPRS = Surveillance, Preparedness, and Response Services; STAS = Science, Technology, and Analysis Services; PSS = Program Support Services; WS = Wildlife Services; MRPBS = Marketing and Regulatory Program Business Services; LPA = Legislative and Public Affairs; NIES = National Import Export Services; AC = Animal Care.

Contractors

- Additional incident support to both the unified Incident Command and ICG was provided by contractors.
- As many as 5 individuals supported the ICG, but most APHIS contractors worked to support field operations, providing services and materials relating to depopulation and disposal.
- This incident ramped up quickly but was also contained rapidly.

Contractor Support in the Field and to the Incident Coordination Group



Note: This report was run daily Monday through Friday between 1/17/2016 and 1/29/2016; thereafter, only weekly or as requested reports were prepared as the incident response slowed. This includes only contractors contracted by the Surveillance, Preparedness, and Response Services Logistics Center.

Overview of Response Effort

- In large part, the success of the response to the Indiana outbreak is due to the lessons learned in 2014–2015.
- Unified response was effective at detecting the virus quickly, depopulating rapidly, and conducting efficient disposal and virus elimination procedures.
- VS NIMTs deployed rapidly, successfully integrating and collaborating with the Indiana State BOAH personnel in a unified Incident Command.
- At the ICG, information management processes were improved, easing reporting burdens and making data analysis easier.
- New financial procedures were successfully implemented, streamlining payments to producers.

Overview of Response Activities

- Variety of depopulation methods were used.
- Most premises (11 of 12) composted as disposal method.
- Most premises (11 of 12) used wet disinfectant for virus elimination.
- On average, it took premises 88 days from NVSL disease confirmation to restock approval (range of 75 to 105 days).
 - Average of 84 days from completion of depopulation to restock approval (range from 71 to 105 days).

Surveillance and Diagnostics Summary

- Utilization of State and Federal resources for rapid sample transit aided rapid identification of virus.
- All commercial premises were rapidly identified and sampled in Control Area and Surveillance Zone.
- Door-to-door surveillance was conducted to identify all backyard premises in the Control Area.
- The NAHLN Lab at Purdue University ran approximately 4,500 polymerase chain reaction (PCR) tests during the outbreak.
 - Tests were predominately for permitted movements.

Appraisal and Compensation Summary

- New financial processes were implemented.
- Only the *Appraisal and Indemnity Request Form* was required prior to the start of depopulation.
- Revised financial processes were successful and timely:
 - All indemnity payments for birds and eggs had been distributed to producers by February 10, 2016.
 - All further reimbursements for materials destroyed during the outbreak were paid by April 14, 2016.
- This was a significant improvement from the 2014–2015 HPAI outbreak.

Permit and Movement Summary

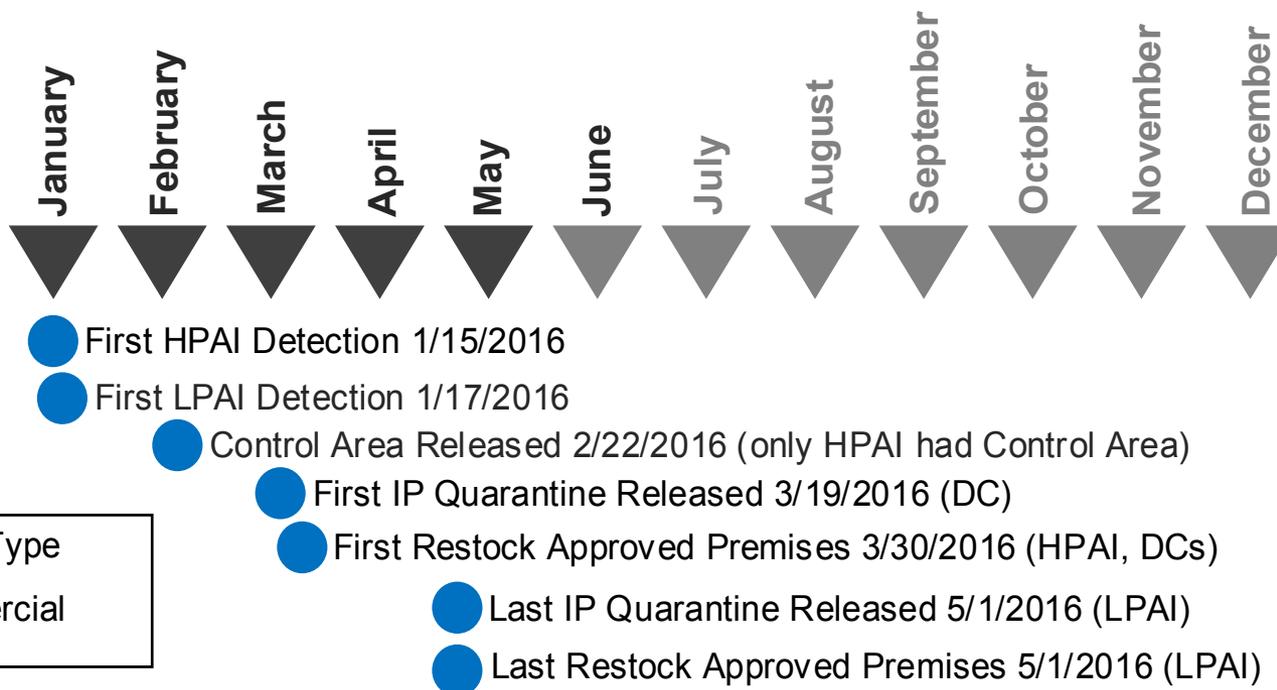
- Indiana State BOAH managed permitted movements from USAHerds.
 - Indiana issued 738 permits for movement when the Control Area was in place (a permit for each movement).
- Data was subsequently entered into the Emergency Management Response System (EMRS).
- Movements were made to processors, landfills, slaughter establishments, farms, renderers, and other destinations.
 - Movements to a processor accounted for approximately 81% of all movements.
- Majority of movements were within the Control Area.

End of Outbreak and Cost

- Incident was restricted in size and scope.
 - One county
 - HPAI: 1 Infected Premises; 1 DC
 - LPAI: 8 Infected Premises; 1 DC; 1 Presumptive Positive
- Response operations, including virus elimination, environmental sampling, and restocking approvals, continued throughout the spring.
- **February 22, 2016:** The Control Area was released after 38 days.
- **May 1:** Last Infected Premises quarantine was released.
- USDA obligated \$30 million to pay for indemnity and response activities.

Summary of Key Events during the 2016 Outbreak

Indiana 2016



Note: Detection dates based on date NVSL determined pathogenicity.

Economic and Trade Impact

- Several countries placed import restrictions of varying degrees.
- Only South Korea imposed limitations on the entire United States.
- Most countries chose a regionalization approach.
- Such regionalization decisions helped to significantly limit the economic impact of this incident.

Ongoing Challenges

- While this outbreak was small in scale, there were still unique challenges due to the number of detections occurring within such a short time frame, logistical complications, and adverse environmental conditions.
- Ongoing challenges that have been identified include the following:
 - Managing expectations in the wake of the new 24-hour depopulation goal.
 - Tracking resources between Federal, State, and contracting agencies.
 - Rapid deployment of personnel and equipment.
 - Supervising and coordinating instructions for contractors in the field.

Policy Updates

- Revised policy guidance documents implemented new appraisal and indemnity procedures in the 2016 Indiana outbreak.
 - Made the process significantly faster.
 - Eliminated the complicated and time-consuming Cooperative Compliance Agreement.
 - Provided a direct mechanism to quickly pay producers for depopulation and disposal activities.
- Flat-rate payments, based on number of birds and production type, were successfully used to pay producers to conduct virus elimination activities.
- An Interim Rule, published February 2016, expressly allowed USDA APHIS to split indemnity payments between owners and growers.
- All policy updates publicly available at www.aphis.usda.gov/fadprep (go to the HPAI page).