

HPAI Virus Elimination: Per-Square-Foot Flat Rates for Floor-Raised Poultry

Introduction

When a poultry facility becomes infected with avian influenza, virus elimination (VE) is a crucial step in the recovery process. The cleaning and disinfection practices used to achieve virus elimination should be cost-effective (APHIS Highly Pathogenic Avian Influenza Red Book). During past highly pathogenic avian influenza (HPAI) outbreaks, reimbursable payments for virus elimination activities were, at times, delayed by the necessary paperwork for cooperative compliance agreements (CCAs). These agreements allowed owners of land and structures and contractors to be reimbursed for completed work. In January 2016, the Agency issued a flat rate payment on a per-bird basis for HPAI virus elimination activities to help streamline the process and expedite payments to affected producers. Separate per-bird virus elimination flat rates were released for floor-raised turkeys and broilers to account for differences in bird density. Payments were made in two installments to help provide funds to producers more quickly.

Since then, APHIS has received comments from the public on this policy and has reevaluated the per-bird VE flat rates to make them more cost-effective while maintaining awareness of our fiscal responsibility to the taxpayer. Stakeholders have also expressed an interest in the production types affected by the flat rates and how those rates will be developed and updated. Therefore, APHIS has revised the VE flat rate for floor-raised poultry. The majority of meat birds, both turkey and broiler, are floor-raised. This evaluation's first priority was developing a VE flat rate for floor-raised poultry paid on a square-foot basis.

What kinds of poultry production are within the scope of this flat rate for floor-raised birds?

This per-square-foot flat rate applies to meat-type turkeys and broilers, as well as floor raised pullets and poults. This rate does not apply to pullets or egg laying birds housed off the floor or egg-laying floor birds.

What costs were included in calculating the flat rate for floor-raised birds?

An Overview of the Finance and Administration Procedures is located on the APHIS Emergency Management website for highly pathogenic avian influenza¹. The website outlines the Appraisal & Indemnity for Birds and Eggs, Materials Destroyed, Depopulation & Disposal, and VE, while the Finance and Administration Processes section includes documents that specify which activities and items are covered under each topic. The decision to clean and disinfect or destroy an item is made on a case-

¹ Overview of the Finance and Administration Procedures
<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/fadprep-hpai>

by-case basis for certain materials. Disposal includes items that would cost more to clean than they are worth; however, for materials that cannot be safely or adequately cleaned, the fair market value of disposed items is paid separately.² Litter cleanout is part of disposal, not VE, and is not covered by the VE flat rate. The removal of birds and litter from the house is covered in the detailed financial plan and is part of depopulation and disposal. VE begins after the removal of birds and litter is complete. The revised VE flat rate is a single rate for all floor-raised meat birds on a square-foot basis that still covers labor, equipment, and supplies to clean and disinfect the interior of barns, equipment, and materials.

Traditionally, cleaning followed by application of a wet disinfectant has been used for VE on HPAI-infected premises. During the 2014-2015 outbreak, however, APHIS found that in many instances dry cleaning and heating barns was the most cost- and time-effective VE method. Since the presence of organic material reduces the effectiveness of chemical disinfectants, the use of chemical disinfection requires a thorough wet cleaning phase in the barn. This wet cleaning phase has historically increased costs and delayed VE completion for a number of reasons. Wet cleaning requires increased time and labor to remove soil and large amounts of liquid and solid waste, apply multiple detergents, rinse, and apply disinfectant. Also, barns must dry out completely before the chemical disinfectant can be applied. In addition, damp environments support the continued viability of the virus, which increases the risk for spread. Heat disinfection, in contrast, penetrates remaining organic matter after dry cleaning, eliminating the need for wet cleaning and immediately removing one environmental factor required for virus viability. Therefore, we used heat disinfection and specific related activities to calculate the VE flat rate for floor-raised poultry. The flat rate VE payment process allows the owner of the premises land and structures to select and implement the most appropriate method, as approved by State Animal Health Officials and APHIS.

Tables 1 through 4 outline the specific activities used to calculate the VE flat rate for floor-raised poultry, and are based on the broad categories (i.e., barn preparation, dry cleaning, heat disinfection, equipment disinfection, wet cleaning, and other activities) listed in the “HPAI VE: Flat Rate Payments” document³. In addition, producers were more cost-efficient when doing VE on their own farm in the 2015 HPAI outbreak as compared to contractors; the flat-rate approach recognizes cost-sharing by producers. The VE flat rate payment for floor-raised poultry does not include routine or deferred maintenance or biosecurity activities that are part of that cost share.

USDA-APHIS-VS is not mandating a certain approach to VE. The information in this document includes examples of the kinds of expenses considered when calculating the flat rate for VE (such as labor, supplies, equipment, and utilities). Producers should not interpret this list of expenses as requirements. The VE flat rate is calculated using the costs for heat disinfection, which is a proven, cost-effective way of performing VE. This approach gives the owner of the land and structures the full latitude to decide what is needed to perform VE on their premises. However, if the

² https://www.aphis.usda.gov/publications/animal_health/2016/hpai-indemnity.pdf

³ https://www.aphis.usda.gov/animal_health/animal_dis_spec/poultry/downloads/hpai_flat_rate.pdf

total expenses exceed the amount paid under the VE flat rate, the remainder would be the responsibility of the owner of the land and structures.

Table 1. Categories of barn preparation activities in the VE flat rate for floor-raised poultry and parties responsible.

Categories of activities	Activities covered-Federal	Industry/grower cost-share
Barn preparation		
Labor	Disassembly and reassembly of: <ul style="list-style-type: none"> • Feeders • Drinkers • Fans (when cannot stay in the barn and be heat disinfected) • Heaters (when cannot stay in the barn and be heat disinfected) • Other cleanable equipment Equipment operator time Supervisor time	<ul style="list-style-type: none"> • Mowing around barns • Barn repairs, such as screens or holes in barn walls • Other routine maintenance
Equipment	Equipment to move items listed above, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> • Mowers • Herbicide sprayers
Supplies	Worker safety supplies: <ul style="list-style-type: none"> • Personal protective equipment (PPE) • Dumpster for disposal of PPE 	<ul style="list-style-type: none"> • Screens • Herbicide or rodenticide

Table 2. Categories of dry cleaning activities in the VE flat rate for floor-raised poultry and parties responsible.

Categories of activities	Activities covered-Federal	Industry/grower cost-share
Dry cleaning (removal of any remaining organic material in barn interior after disposal of birds and bedding are complete, including vacant barns and feed storage facilities)		
Labor	Cleaning of: <ul style="list-style-type: none"> • Feeders • Drinkers • Fans (when cannot stay in the barn and be heat disinfected). • Heaters (when cannot stay in the barn and be heat disinfected) • Other cleanable equipment Dusting of barn interior spaces that house or have direct contact with poultry or poultry products Equipment operator time Supervisor time	Cleaning of: <ul style="list-style-type: none"> • Control room • Break room • Locker room • Office • Hallway
Equipment	Equipment to dry clean barn interior spaces that house or have direct contact with poultry or poultry products, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> • Trucks and ATVs for site supervisors • Portable toilets
Supplies	Worker safety supplies: <ul style="list-style-type: none"> • Personal protective equipment (PPE) • Dumpster for disposal of PPE and supplies used in dry cleaning 	<ul style="list-style-type: none"> • Meals for workers • Utilities (keeping the lights on while dry cleaning)

Table 3. Categories of disinfection activities in the VE flat rate for floor-raised poultry and parties responsible.

Categories of activities	Activities covered-Federal	Industry/grower cost-share
Heat disinfection of barns (heat barns to between 100° F and 120° F for 7 days, with at least three of those days being consecutive)		
Labor	Time to: <ul style="list-style-type: none"> • Set up heaters • Monitor heating • Record temperatures Equipment operator time Supervisor time Electrician time to reroute existing heaters OR technician time to set up external heaters	
Equipment	Equipment to heat disinfect barns, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> • Trucks and ATVs for site supervisors
Supplies	Supplies needed to heat disinfect barns	
Utilities	Utilities to run heaters and fuel for heaters	
Decontamination of equipment		
Labor	Wash and disinfect: <ul style="list-style-type: none"> • Feeders • Drinkers • Fans (when cannot stay in the barn and be heat disinfected) • Heaters (when cannot stay in the barn and be heat disinfected) • All equipment listed for dry cleaning • Other cleanable equipment Equipment operator time Supervisor time	
Equipment	Equipment to decontaminate equipment listed above, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> • Trucks and ATVs for site supervisors
Supplies	Worker safety supplies: <ul style="list-style-type: none"> • Personal protective equipment (PPE) • Dumpster for disposal of PPE and supplies used in disinfecting equipment Water and approved detergent/disinfectant for decontaminating equipment	<ul style="list-style-type: none"> • Sawdust

Table 4. Categories of additional activities that may be in the industry/grower cost-share in the VE flat rate for floor-raised poultry.

Categories of activities	Industry/grower cost-share
Wet cleaning and disinfection of barns	
Labor	Washing and disinfecting: <ul style="list-style-type: none"> • Light bulbs • Ledges • Eaves • Other interior barn surfaces • Exterior of barn Application of insecticide/rodenticide
Equipment	Equipment for wet cleaning and disinfection
Supplies	Supplies for wet cleaning and disinfection
Other activities	
Admin/ Bookkeeping	<ul style="list-style-type: none"> • Clerical and accountant time • Mileage to meetings • Legal counsel to review documents • Time spent at meetings
Restocking preparation (Labor, equipment, and supplies)	<ul style="list-style-type: none"> • Purchase of bedding • Labor and equipment to spread bedding in house • Any other activities related to restocking preparation after final environmental testing has occurred

How did USDA-APHIS-VS analyze VE data from 2015 HPAI outbreak to estimate the flat rates for floor-raised poultry?

Over the course of the 2015 HPAI outbreak, cleaning and disinfection (C&D) of barn interiors on affected premises shifted from wet cleaning and chemical disinfection procedures to less time-intensive and more cost-effective methods. The presence of organic material reduces the effectiveness of chemical disinfectants. Heat disinfection penetrates remaining organic matter after dry cleaning, eliminating the need for wet cleaning and saving time and money in completion of VE. Data on the costs of these C&D activities were collected from farmer-reported expenditures on commercial turkey farms under CCAs, which served as a detailed source of information. These expenditures were collected from producers who performed all VE activities themselves during the 2015 outbreak in Iowa, Minnesota, Missouri, South Dakota, and Wisconsin in turkey finishing barns that ranged from 30,000 to 50,000 square feet and brooder barns that ranged from 10,000 to 30,000 square feet. Financial plans typically included information on the costs by barn and barn size or included information with which to estimate an average cost per barn and average barn size. CCAs included the detailed labor, equipment, and supplies typically used to perform VE activities as outlined in Tables 1 to 4.

Many turkey farms in the Midwest that used heat disinfection in the 2015 HPAI outbreak did not report the rental of external heating units in the CCA financial plans. Instead, many of those farms reported electrician time to convert or modify heaters in barns. However, not all farms or conditions may allow for that capability going forward. Therefore, the VE flat rates used estimates of heating cost from layer barns that

underwent VE in the 2015 HPAI outbreak, including the rental of external heater units; mobilization of units to and from the farm; service technicians; and installation activities to supplement the barn preparation, dry cleaning, heating fuel, and barn temperature monitoring costs reported by turkey farms.

USDA-APHIS-VS analyzed the data from the 2015 HPAI outbreak CCAs to calculate the VE per-square-foot flat rates for floor-raised poultry for use in future outbreaks. Supplemental data on rate inflation factors, personal protective equipment (PPE) used, and heat disinfection personnel, equipment, and supplies were also collected as described below. Farm-level response cost data used in this analysis did not include indemnity, USDA-APHIS-VS personnel, supplies, or overhead. Contractor fees were also not included. The consumer price index reported from the Bureau of Labor Statistics was used to inflate all wages, equipment rental rates, and supply costs to 2017 dollars.

The PPE needed to perform VE activities was drawn from the PPE usage across USDA-APHIS-VS in the 2014-2015 HPAI outbreak using data on actual shipments of PPE to command centers and personnel performing tasks on site. PPE includes coveralls, gloves, boot covers, a cap or hood, and a respirator. We estimate that each responder changed out PPE once every 3 hours and a suit of PPE costs approximately \$5/PPE suit. This estimate was used to ensure that the flat rate is adequately funded to protect the health and safety of producer employees and supervisors performing VE activities.

The median poultry worker wage reported in the 2015 HPAI outbreak CCAs for all VE activities was \$26/hour for all personnel types. Supervisor wages were only broken out from other workers' wages in one instance (\$30/hour supervisor wage). For supervisors, a higher hourly wage may reflect a higher level of oversight needed for VE. So the median observed wage of \$26.62/hour (inflated to 2017 dollars) was used for supervisor time. For other poultry workers it was determined that the median wage of \$26.62 for VE activities, while perhaps appropriate for other types of activities, was too high for VE activities that closely reflect the kind of barn cleaning activities required in normal business. The 2011 Economic Research Services Agricultural Resource Management Survey (ERS-ARMS) of Broilers included regional wage variation, and was used to set other poultry work wages. The regional poultry worker wages from that ERS-ARMS survey varied from \$8.27/hour to \$11.25/hour in 2011, which was \$8.97/hour to \$12.21/hour when inflated to 2017 dollars. The general hourly poultry worker wage used in the VE flat rate for floor-raised birds in the representative budget (applicable for activities like dry cleaning, monitoring barn temperatures, etc.) was set to the maximum hourly regional wage reported or \$12.21/hour to reflect a single national wage that is appropriate for all regions.

How are flat rates calculated for floor-raised poultry?

The median⁴ rates of usage by activity was calculated across turkey finishing barns sized 30,000 square feet to 50,000 square feet and turkey brooder barns sized 10,000 square feet to 30,000 square feet. These represented the most common sizes of turkey finishing and turkey brooder barns, respectively. To calculate the flat rates, we estimated the median rates of usage on personnel, equipment, and supplies per barn.

Median costs per hour (personnel and equipment) or costs per unit (supplies) were inflated to 2017 dollars to obtain a cost for each activity per barn. The hourly wage used for poultry workers was set to the maximum hourly wage reported in the 2011 ERS-ARMS survey, inflated to 2017 dollars. In addition, every personnel wage was calculated using a multiplier of 1.5 from the base wage to give producers the funds to cover their poultry worker costs (including wages, unemployment insurance, taxes, other benefits, and possible overtime pay).

The median activity usage was multiplied by the median cost to get a total cost for each activity. These activity totals were summed per barn to get a total barn cost and divided by the average barn size to get a VE cost per square foot. Recognizing that some variability in activities occurs, the calculated VE cost per square foot was rounded up to the next nickel to account for moderate variations in VE costs. Table 5 lists the budget of activities.

Again, since USDA-APHIS-VS determined dry cleaning and heating to be the most cost-effective VE method, we used that as the basis for the floor-raised poultry VE flat rate calculation. Producers are responsible for conducting or contracting some or all activities for successful VE and may choose to use any effective VE method with the funds provided. These activities represent the requirements for successful VE in the 2014-2015 HPAI outbreak. Because there are no VE activities associated with lying fallow, producers who choose this approach rather than cleaning to eliminate virus are not offered funding.

⁴ In this set of barns, the mean and median personnel wage rates, equipment rental rates and supply costs were similar. We selected the median as a summary statistic across observations to provide the best representation of central tendency.

Table 5. Representative budget used to estimate a per-square-foot flat rate for floor-raised poultry for VE in a representative 35,000 square-foot barn

VE Activities	Description of the Activity	Use	Unit	Rate (\$/unit)	Total (\$)
Barn preparation					
Personnel					
Poultry worker	disassembly/reassembly of feeders, drinkers, fans, heaters, and other cleanable equipment	14	hr	\$18	252
Supervisor	All barn prep activities	1	hr	\$27	\$27
Equipment					
Skid steer /1	50 hp	1	hr	\$113	\$113
Supplies					
PPE	Personnel Protective Equipment	5	suits	\$6	\$30
Dry cleaning					
Personnel					
Poultry Worker	All dry cleaning activities	225	hr	\$18	\$4,050
Supervisor	All dry cleaning activities	2	hr	\$27	\$54
Equipment					
Pay loader /1	150 hp	4	hr	\$154	\$616
Skid steer /1	50 hp	3	hr	\$113	\$339
Tractor /1	150 hp, with rotary broom attachment & box blade attachment	2	hr	\$134	\$268
Blower /2	backpack blower	6	hr	\$62	\$372
air compressor /2	100 psi	5	hr	\$72	\$360
Lifts /1	All types	3	hr	\$88	\$264
Supplies					
PPE	Personnel protective equipment	75	suits	\$6	\$450
Dumpster	All dry cleaning activities	1	dumpster	\$308	\$308
Wet cleaning of equipment that will not be heat-disinfected					
Personnel					
Poultry Worker	All washing and disinfection of drinkers, feeders and equipment	71	hr	\$18	\$1,278

VE Activities	Description of the Activity	Use	Unit	Rate (\$/unit)	Total (\$)
Supervisor	All washing and disinfection of drinkers, feeders and equipment	2	hr	\$27	\$54
Equipment					
Pressure washer/1	PTO-powered for drinkers, feeders and equipment	9	hr	\$124	\$1,116
tractor/1	for PTO-powered equipment	9	hr	\$103	\$927
water trailer /2	1,000 to 1,500 gallon	8	hr	\$47	\$376
Supplies					
Disinfectant	Virkon	7	tubs	\$64	\$448
Detergent	For cleaning equipment	1	Tub	\$36	\$36
PPE	Personnel protective equipment	24	suits	\$6	\$144
Water system cleaner	Cid 2000	10	gal	\$30	\$300
Heat Disinfection					
Personnel					
Poultry worker	monitor temperatures	14	hr	\$18	\$252
Poultry worker	installation	40	hr	\$18	\$720
specialized labor	service technician	1	per barn	\$642	\$642
Equipment					
Heaters	1 million BTU per barn	2	heaters	\$2,210	\$4,420
Ducting	ducting	1	per barn	\$185	\$185
Mobilization	mobilization-in and out	1	per barn	\$2,310	\$2,310
Supplies					
Fuel	Fuel for heaters (for the representative 35,000 square-foot barn)	0.06	gal/sq ft	\$0.82	\$1,722

1/ Equipment rates (\$/hr) include equipment, mobilization, operator, and fuel cost.

2/ Equipment rates (\$/hr) include the equipment and mobilization cost.

How much will USDA-APHIS-VS pay for the flat rate for floor-raised birds and how is it paid?

The per-square-foot VE flat rate for floor-raised poultry is \$0.65 per square foot. The VE payments are made to the owner of the land and the structures that housed the infected birds. Most often, this is the grower. USDA-APHIS-VS makes two payments directly to the owner of the land and structures, each for 50 percent of the total calculated value. Owners of the land and structures may request the initial payment via a VS 1-23 form and are paid after the flock plan is completed. A (second) final VS 1-23 is signed and payment is made after laboratory testing of environmental samples is completed with negative results reported. The Flock Plan should clearly outline the detailed process and timeline for the expected VE activities as well as expectations for all parties. The owner of the land and structures will receive the second payment only after following these procedures. USDA-APHIS-VS will provide continued oversight (including input and inspections) to ensure that the HPAI virus is quickly contained and fully eliminated.

How will the square footage included in the payment calculation be measured?

Square footage is measured by Federal response personnel; primarily these are case managers, site managers, or field reimbursement specialists, but any persons acceptable to the industry and State may perform this task. The areas to be measured are those directly involved with animal management that under normal biosecurity conditions would be expected to have contamination, including, as mentioned, the areas where flock management personnel work.

How frequently will the flat rate for floor-raised poultry be reviewed?

Flat rates for VE in poultry will be reviewed annually, just before the beginning of the highest risk period for avian influenza. Rates will be reviewed in early November and released in mid-November each year to incorporate October propane prices. These rates should be appropriate through the majority of the influenza season.

For more information, contact:

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