

# VSD+Heat Best Management Practices for Poultry

The United States Department of Agriculture (USDA) may approve a State's request to use Ventilation Shut Down + Heat (VSD+) in constrained circumstances in response to a poultry foreign animal disease. Prior to using VSD+ it is vital that the State and the Infected Premises be very familiar with the USDA policy and AVMA Guidelines for the Depopulation of Animals (2019); *links to the documents are in the Additional Resources Section at the end of this document.*

- Rapid stamping-out is needed to prevent continued HPAI virus shedding and amplification. The amount of virus produced by infected birds is significant; the more virus that exists, the harder it is to control and contain an outbreak.
- Whenever VSD+ is used in constrained circumstances, the USDA and AVMA have a goal of achieving 100% mortality rate in as short of time as possible.

## VSD+ Best Management Practices:

<b>All fan openings</b>	Seal with plastic or foam
<b>All fan circuits</b>	<ul style="list-style-type: none"> <li>○ Power OFF.</li> <li>○ Double check that mechanical override thermostats cannot turn fan on.</li> </ul>
<b>All lights</b>	At least three to four hours before VSD+ initiation turn on lights
<b>All air inlets</b>	<ul style="list-style-type: none"> <li>○ Close all inlets in walls and ceilings. Seal with plastic if possible.</li> <li>○ Disconnect from controller or shut off the circuit.</li> <li>○ Check to ensure each inlet is sealed.</li> </ul>
<b>Openings to manure storage</b>	Seal with plastic or foam.
<b>Openings to egg belts</b>	Seal with plastic or foam.
<b>Doors and other gaps</b>	Seal significant gaps (>4 in <sup>2</sup> ) in the structure (doors, walls, holes) with plastic or foam.
<b>Stirring fans</b>	<ul style="list-style-type: none"> <li>○ Turn on to better distribute heat on lower floor, if a multiple-floor barn.</li> <li>○ Add additional in-barn fans to distribute the heat to avoid cold spots.</li> </ul>
<b>Temperature monitoring</b>	The facility must have the ability to monitor the temperature in the barn remotely. Ideally, multiple sensors are needed throughout the length of the barn and on multiple levels if present.
<b>Manure handling system</b>	Run manure belts/scrapers before VSD+ to remove litter as manure increases number of BTUs needed.

<b>Supplemental Heat</b>	<ul style="list-style-type: none"> <li>○ Needed if estimated time to 104°F is more than 30 minutes, per Egg Industry Center calculations [LINK needed].</li> <li>○ Start with supplemental heat directed to lower levels in multi-level barns.</li> <li>○ Use 1.5 – 2 times the modeled supplemental heat.</li> <li>○ Operate heaters at maximum capacity; it might be necessary to override the automatic shutoff that may trip if too hot or oxygen is too low.</li> <li>○ Windy and/or cold days will require more heat than indicated by the model. The windward barn will likely require more heat than the other more-protected barns. The high-BTU heaters bring in a lot of fresh air; recirculate the air from the barns to feed the heaters vs. pulling in fresh air.</li> <li>○ Barns with manure pits – direct the hoses from the heaters up, hanging them from the bottom of the cages and point heat towards the poultry level.</li> <li>○ Caged layer barn with manure belts – the barn may have a system to assist with drying the litter; pipe that hot air into the general barn heating system.</li> </ul>
<b>Penning</b>	If possible, penning the poultry into a smaller area prior to the start of VSD+ is ideal.
<b>Waterers</b>	<ul style="list-style-type: none"> <li>○ Shut off water to birds before VSD+ and keep off.</li> <li>○ The water can be dumped onto ground to help increase humidity in building, but do not create puddles (heat sinks).</li> </ul>
<b>Misters</b>	<ul style="list-style-type: none"> <li>○ Run misters to increase humidity above 80%.</li> <li>○ However, if running during VSD+ and the water hits the temperature probes, the temperature reading may appear artificially low.</li> </ul>
<b>At the completion of VSD+</b>	Leave barn closed for at least 6-8 hours following VSD+. Opening/ventilating barns too soon may revive some birds that were in the process of going down when VSD+ was stopped.

When VSD(+) is complete, all remaining live poultry must be depopulated as soon as possible with AVMA-approved methods.

### Additional Resources & Assistance:

- *USDA-APHIS-VS HPAI Response, Ventilation Shutdown Plus (+) Policy, January 2022*, [https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/hpai/ventilationshutdownpolicy.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai/ventilationshutdownpolicy.pdf)
- AVMA Guidelines for the Depopulation of Animals (2019), <https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf>
- Egg Industry Center, Iowa State University, 515-294-4037