

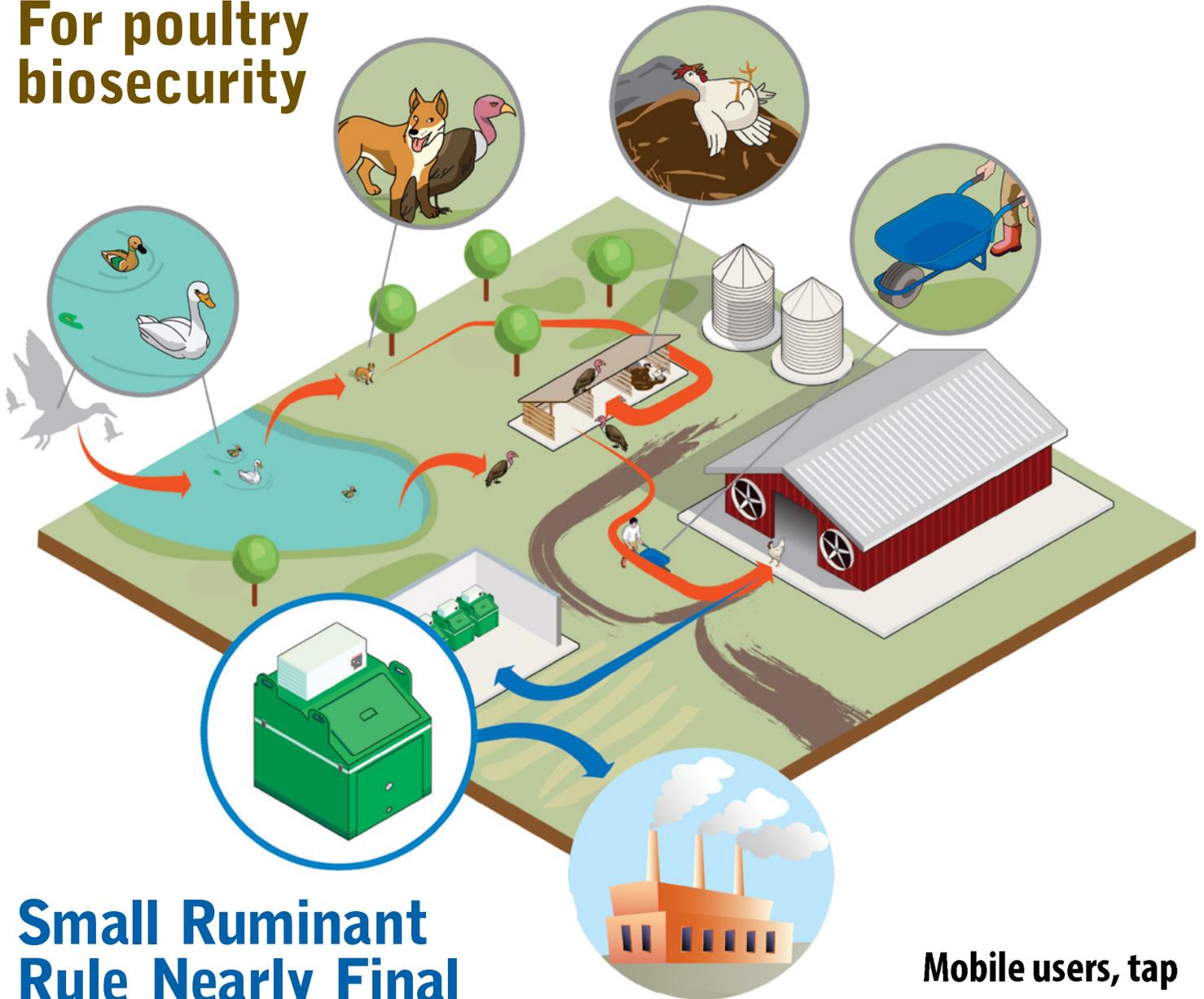
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Freezing vs. Composting

For poultry
biosecurity



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Freezing vs. Composting for poultry biosecurity

By Tina Caparella

Researchers in the United States have known for some time that a wide range of wild mammals – including raccoons and foxes, common visitors to farms and waterways – can be carriers of avian influenza (AI). More recently, however, researchers confirmed that some mammals are not only carriers but can also transmit the virus to birds, raising new questions about how the disease may move in the environment and between farms.

“When wildlife and poultry interact and both can carry and spread a potentially damaging agricultural pathogen, it’s cause for concern,” said research wildlife biologist Dr. Jeff Root, one of several researchers from the National Wildlife Research Center (NWRC), part of the United States Department of Agriculture’s Animal and Plant Health Inspection Service Wildlife Services program studying the role wild mammals may play in the spread of AI viruses.

In May 2016, the agency issued its latest research update on the topic, highlighting experiments in which Root and his team demonstrated that skunks and rabbits can become infected with and shed the AI virus, which subsequently infected mallard ducks. Knowing this, the risks from mammals frequenting areas in and around poultry farms should be taken into consideration when crafting biosecurity plans, according to the full NWRC study published in late 2015.

Freezing/Rendering Beats Composting for Biosecurity

That’s where the rendering industry plays a key role. One of the most effective ways to reduce the number of animal visitors on the farm is to store routine mortalities in freezer collection units for later transport to a rendering facility.

“Proper management of bird mortality is an important [often overlooked] part of biosecurity,” said Dr. Jonathan R. Moyle, an associate professor and extension poultry specialist at the University of Maryland. “Freezers can help growers by providing a simple method to dispose of the birds. Not only do freezers prevent predators from accessing the carcasses, but they can also help reduce insects, which can also be vectors of disease.”

Randall Smith of American Proteins Inc., which has been collecting poultry mortalities from farmer-owned freezer units for more than 15 years, agrees.

“Freezers are the answer to many biosecurity concerns,” said Smith, American Proteins’ farm mortality manager. “Material is collected, put in sealed freezers, cooled to preserve marketability, and then hauled off the farm, removing any disease concerns. The material is then processed in the rendering plant, which produces several disease-neutral products that can be sold and used. These useful products are from recycled material that if left in the environment can be hazardous.”



The orange arrows show how migratory waterfowl, known carriers of disease, infect local animals that then visit compost piles on poultry farms. Once introduced on the farm, the disease can spread to live poultry. The blue arrows show an alternative – storing mortalities inside a freezer unit for later transport to rendering – that eliminates the food source and therefore the disease transmission risk from wild animals.

Illustration provided by Greener Solutions.

The recent NWRC study on mammals also stated that trends in the evolution of the AI virus “reaffirm the need to assess multiple facets of farm-scale biosecurity of poultry operations, wherein all routes of viral intrusion, even those [previously] thought to be unlikely, are addressed.” Based on this new research, many in the poultry industry believe the old method of composting for managing mortality should be reassessed.

Retired University of Delaware poultry specialist Bud Malone is among them. A long-time proponent of composting, Malone now favors disposal of routine mortalities in sealed freezer collection units to significantly reduce the number of unwanted animals and flies on the farm and lessen the risk of disease transmission. He also pointed out that the majority of poultry growers do not compost properly, potentially aiding in the spread of disease.

Composting sheds are in essence open-air food sources that attract scavengers such as buzzards, foxes, raccoons, birds, and feral cats. Those same animals also visit local waterways where they can come into contact with migratory waterfowl, known carriers of AI. In 2004, Malone observed evidence of those scavengers visiting compost bins on Delaware farms that were infected with low pathogenic AI.

“Although never documented, it is my opinion that composting helped spread AI during that 2004 outbreak,” Malone told *Render*.

Practice Offers Benefits Beyond Better Biosecurity

Freezer collection is simple. Poultry growers collect routine mortalities daily, place them inside a specially-designed freezer unit, and close the lid. Once the flock has left the farm, collection trucks then empty the units into a sealed trailer and deliver the mortalities to a rendering plant. Freezer units are currently only used to store day-to-day mortalities for later transport, not for collection or disposal of catastrophic losses, such as AI-infected birds.

On average, a poultry farm that grows a 67,000-bird flock would need anywhere from four to eight freezer collection units. The units are only turned on as additional storage capacity is needed over the course of the flock so energy is not wasted. An average four-unit farm would spend about \$92 over a seven week grow-out cycle.

Poultry growers switching to this practice have been able to greatly reduce the time and money previously spent on composting, saving thousands of dollars a year in operational costs. Freezer collection units are the most labor-efficient method of disposal for poultry mortalities, according to Malone. Nonmonetary benefits for the grower include the elimination of smells, flies, and scavengers associated with composting, improving the quality of life for the farmer – and the farmer’s neighbors.

Another benefit for the grower – and the industry as a whole – is the reduced environmental impact compared with other mortality management methods. For example, composting, which is premised on land application as a second step, increases the overall nutrient load that could potentially run off into nearby waterways. The freezing/rendering model removes the material from the farm setting entirely, eliminating any potential environmental impact.

Freezing Poised for Growth

Utilizing freezer units to store routine mortalities has been in use for decades, but the increasing focus on two of its biggest advantages – biosecurity and nutrient management – has led to a resurgence of interest.

Greener Solutions is one company that sees great growth potential in pairing the two technologies of freezing mortalities and then sending them to rendering. The company’s founders began researching and developing a new “hybrid” model in 2011 that later included a state-funded pilot project tied to the nutrient management benefits of the practice. In 2014,



Once the flock leaves the farm, the poultry mortalities in the freezer unit are collected and taken to a rendering plant.

A long-time proponent of composting now favors disposal of routine poultry mortalities in sealed freezer collection units that are then taken to rendering.

the company began offering its collection service to poultry growers on the Delmarva Peninsula, an area that includes most of Delaware and portions of Maryland and Virginia.

“We saw this as a win-win for the individual grower, the industry as a whole, and of course the environment,” said Greener Solutions co-founder and poultry grower Terry Baker.

“This is a recycling model, not a disposal model like composting,” said Baker’s business partner Victor Clark, explaining that “every pound of material that is recycled is one less pound of high-phosphorous material that would otherwise have been land-applied on farm fields. We think this will be the model of the future because of the heightened interest in nutrient management and biosecurity.”

J.J. Smith, president of Valley Proteins Inc., agrees.

“It’s not a big part of our business,” he said of the two-to-three truckloads per week Greener Solutions delivers to Valley’s rendering plants in Linkwood, Maryland, and Linville, Virginia. “But there is certainly room for it to grow in the Delmarva area, perhaps 10 times the size it is now.”

Smith explained there has been a push on Delmarva farming operations to eliminate phosphorous runoff that eventually ends up in the Chesapeake Bay. The freezer bins are a good option over composting to reduce runoff and prevent transmission of possible disease by scavenger animals visiting compost piles. Other advantages of this collection method Smith sees are that mortalities do not deteriorate or degrade to the point they can no longer be rendered and collection trucks visit the farm infrequently, only in between flocks.

Smith pointed out that other areas in the eastern United States, such as North Carolina and South Carolina, have larger poultry operations than Delmarva but are not currently experiencing the same environmental pressures. However, he noted that the freezer units significantly reduce the biosecurity risk that composting brings.

“Moving mortalities after the birds have left the farm will 99 percent prevent the spread of potential diseases,” Smith stated.

Like Valley Proteins, the collection of mortalities from freezer units is a small part of American Proteins’ business, but Randall Smith believes there is room for growth in this type of collection for many reasons: the low cost and convenience of disposal to the grower, the elimination of environmental concerns, and the biosecurity of preventing the possible spread of disease.

Biosecurity is critical to the Cumming, Georgia-based renderer that collects from grower-owned freezer units in Georgia, Florida, Alabama, and Tennessee. American Proteins services the freezers as requested by the poultry grower. The company’s collection trucks are cleaned and sanitized with a special hydrogen peroxide solution by onboard sprayers before entering and upon leaving each farm and when arriving at the rendering plant to remove any potentially diseased material.

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Freezing *Continued from page 11*

In addition, truck drivers spray their shoes after leaving the farm ground.

Freezers are also placed as far away from poultry houses as possible and, in most cases, collection trucks are parked further away from the freezer shed, limiting physical proximity to poultry houses. American Proteins developed a video focusing on the biosecurity of collecting farm mortality from freezer units that is available on YouTube at www.youtube.com/watch?v=69y2_Rd7arg.

Growers See Great Potential Too

About 12 years ago, Doug Brown decided to invest in a grower operation for a major poultry company in Texas with plans to build six new 40-foot by 500-foot chicken houses. While researching options for mortality disposal to ensure a biosecure farm, Brown narrowed it down to three: composting, incineration, and on-farm storage in freezer units.

After visiting several farms that had each of these choices, he opted to go with the freezer containers because they were simple to operate, economical, and “very biosecure.” Brown installed nine freezer boxes on his six-house farm and has never faced a biosecurity issue. A local poultry rendering company collects the grower’s mortalities after the flock has left the farm, about every nine weeks.

“The truck does not come while the birds are on the premises,” noted Brown, who continues to be a strong proponent of the freezers as the most environmental and biosecure way of handling poultry mortalities. “Today, after having visited other farms over the last 12 years that utilize compost and incineration, my experience says that the freezer

boxes are the most environmentally friendly, biosecure method to handle farm mortality,” he added. “It also requires the least amount of time, effort, and cost to operate.”

It was for many of the same reasons – convenience, cost-effectiveness, and biosecurity – that family-owned State Line Farms in Delaware installed the units on two of its three farms. The grower was one of the first to adopt the practice on its 82,000-bird operation in Delaware as part of a state-sponsored pilot program three years ago. State Line Farms co-owner Brent Willin said the convenience of placing the mortalities in the containers ensures the farm workforce collects the dead birds daily versus less often when composting. The company added the freezers to a second 60,000 bird operation last year and will eventually place the units on a third farm.

The 20 total freezers at the two farms are serviced between flocks by Greener Solutions and the mortalities are taken to a renderer. Willin said the freezers allowed his operation to more easily adapt to heightened biosecurity requirements, such as no sharing of equipment, which were instituted in the wake of the Midwest AI outbreak in 2015. Composting, unlike freezing, requires the use of a front-end loader, which would have been a problem for a three-farm operation that shared one front-end loader.

Willin said the only challenges are the upfront costs of the equipment and back-up power generation for the freezers should the farm lose power. Some upfront costs could be defrayed through various programs that offer cost-share subsidies for nutrient management practices in certain areas of the country.

“Overall, I’m happy with them,” Willin commented. “The containers isolate any disease that may be in the flock. The benefits outweigh any challenges.” **R**



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