APPPA Grit

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this issue

Fostering Health: The Pastured Poultry Approach to Dealing with Avian Influenza

—Susan Beal, DVM, Mike Badger, Terrell Spencer

Pasture-based production for poultry provides several natural barriers to the transmission of diseases such as Avian Influenza. These natural barriers are not often discussed from the conventional biosecurity point-of-view, but are validated by the experience of pastured poultry producers, poultry research science, and the common-sense that is the cornerstone of any agricultural system.

A Pastured Perspective to Flock Health

A pastured poultry approach to protecting the flock from Avian Influenza starts with a production environment that promotes a healthy immune system, and in some cases, directly contrasts the conventional confinement production environments.

Sunlight: Avian Influenza is particularly sensitive to ultra-violet radiation, and that's what's found in direct sunlight. A foundational principle to a pastured poultry model is the regular movement of the birds to fresh pasture; pasture that has been sterilized by the sun before and after poultry actively forage on it. Incorporating natural sunlight into the winter housing and the brooder also bring the sanitizing effects of sunlight into all phases of production and should be practiced as much as possible.

Forage: Ideally, pastured birds obtain a diverse and complete diet by foraging on green vegetation and insects, consuming a balanced feed ration, and drinking clean, fresh water. Poultry texts prior to the 1950's promoted the importance of green, natural feeds to the health and nutrition of the flock. As the birds were moved inside and nutritional "balance" was achieved by the addition of vitamins to the feed, the importance of forage as a natural source of vitamins and other nutrients diminished. Currently, conventional poultry management opinion actually considers access to forage as a threat to flock health, despite research suggesting otherwise. Pastured poultry producers continue to prove, through profitable flock production, that natural forages result in healthy flocks, typically with no antibiotic inputs.

Pasture Rotation: By using planned, regular pasture rotation, the birds do not spend time on a buildup of moist litter. By removing the birds from their litter at an early age when the chicks are old enough to leave the brooder, the air quality within the flock's living

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space is fresh with minimal ammonia and levels that stress poultry health.

Less Stress: The lower stocking rates common in pastured flocks typically yield a lower stocking density. A lower density results in a less stressful environment for the pastured flock, allowing for natural flock behaviors and preventing the stress of overcrowding. Additionally, poultry do not have to undergo invasive procedures such as debeaking or dubbing, as the stimulation of the natural environment prevents poultry from attacking each other because of high stocking rates. Just as in humans, less stress promotes an immune system functioning at optimum levels.

As we look at flock health and biosecurity from the pastured poultry perspective, we should pause long enough to ask the question, "Does confinement actually favor the rapid mutation or spread of highly pathogenic avian influenza within a flock that's confined inside?" A confinement poultry operation houses tens of thousands of individual birds inside a climate controlled space, and a single farm may house millions of birds at any given time. This provides several favorable conditions for avian influenza to thrive. Birds are in a close proximity to one-another, and the poultry houses are proximal to each other as well, facilitating the bird-to-bird spread of the virus. The chicken barns exclude natural, sanitizing and drying environmental factors, such as sunlight and heat, both of which work to naturally destroy the virus. By excluding natural environment factors and restricting movement to the barn, the flock is continually exposed to accumulating dust, litter, and feces as the flock grows, compromising the immune system of the flock.

About Avian Influenza

Avian Influenza virus is classified as either low pathogenic (LPAI) or high pathogenic (HPAI). Migratory wildfowl are typically carriers for the LPAI strains, and this has minimal, if any, effect on the waterfowl. However, in the current United States

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Holistic Approach to Pastured Poultry Biosecurity

—Susan Beal, DVM, Mike Badger, Terrell Spencer

The primary sources of infection of poultry with Avian Influenza appear to be coming from migratory waterfowl and husbandry practices by humans. Waterfowl are ubiquitous hosts for low pathogenic viruses, but it's the high pathogenic form that ultimately infects poultry with a high mortality rate. Producers should focus on keeping the flock's immune system at optimum health and preventing contact with the disease through sound biosecurity practices.

Cool, wet weather favors the viability of the virus while heating, drying, and disinfecting destroys it. The virus is extremely sensitive to ultraviolet light – sunshine. Transmission is often by way of direct contact and droplets such as nasal discharges.

Keeping the Flock's Immune System at Optimum Health

- Ensure the feed is balanced for the species, class and age of bird.
- Keep brooder and winter bedding dry; allow natural sunlight.
- Move birds often enough to keep the flock on fresh, clean pasture.
- Incorporate natural sunlight into the daily living environment in the brooder, winter housing, and pasture.
- Maintain low-stress stocking densities. Based on market age flocks, those spacing requirements are typically 1.5 to 2 sq. ft. for broilers, 4 to 5 sq. ft. per laying hen, 6 to 8 sq. ft. per turkey.

If possible, reduce the use of GMO feeds, because there is evidence in other situations that this may predispose the birds to inflammation, immune stress and microbial imbalance.

Protecting the flock with physical biosecurity

- Avoid waterfowl and wild birds.
- Keep flocks from accessing farm ponds, sloughs, and other bodies of water.
- Watering sources should be disinfected, especially if using surface water.
- Design feeders, waterers, and housing so that it is not attractive to wild birds.
- Dispose of dead poultry to discourage feeding by and contamination of crows, scavengers, and raptors.
- Prevent cross contamination from other flocks.
- Source poultry from reliable sources.
- Avoid poultry shows, fairs, and backyard flocks.
- Disinfect footwear and equipment after coming into contact with other poultry or after visiting feed and supply stores.
- Disinfect the undercarriage of the vehicle and the bottoms of the tires.
- Restrict the access of feed trucks, delivery vehicles, processors, and other services to non-production areas of the farm.
- Request government officials, who can be transmission routes for spreading Avian Influenza, conduct all business at the end of the farm lane. If they are sampling other than dead birds, do not return the live birds to your flock; sacrifice them or isolate/sequester them at the border of your farm.
- Train as a certified poultry health technician so you can legally sample your own birds should you find your flock under government surveillance because of local outbreaks. Check with your state department of agriculture for more information.

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outbreak, the USDA has observed HPAI strains in wild fowl in Washington, Oregon, Idaho, California, and Utah (as of May 1, 2015). Domestic poultry infected with LPAI may go undetected because such infections often result in no symptoms or very mild symptoms, such as a slight reduction in egg production or feed conversion in meat types.

The H5 and H7 low pathogenic subtypes of Avian Influenza are capable of mutating into the high pathogenic forms (H5N8 and H5N2 in the current outbreak), which can quickly spread throughout a susceptible poultry flock. Depending on the species of fowl, mortality can be high. In the current outbreak, turkeys have a very high mortality, whereas laying hens seem to be showing moderate morbidity and lower mortality. After the initial cases of dead or overtly ill birds, the rest of the laying flock levels out and does not show extreme symptoms.

Due to federal response, the actual mortality in any flock that tests positive for HPAI is always 100% fatal, as all surviving birds are destroyed in an attempt to prevent the further spread of the virus. The federal depopulation strategy is one of the most frightening aspects of the virus because the loss and destruction of all poultry on a farm carries grim economic and emotional realities.

The pastured poultry community needs to cut through the fear and understand some fundamental realities. Avian Influenza is found in virtually all wild waterfowl, and short of exterminating all wild populations, Avian Influenza is not new and will not go away anytime soon. This makes all poultry vulnerable to some risk of infection with Avian Influenza.

Consider, however, poultry that have been infected with low pathogenic forms of H5 and H7 have been shown to develop immunity to the related subtypes of the high pathogenic forms. That means a prior infection with H7 LPAI is protective against H7 HPAI, but not against highly pathogenic H5 strains and vice versa.

Pastured poultry producers have reason to be positive and to stay the course. There is a clear disparity in the number of backyard flocks testing positive compared to the large-scale commercial flocks despite increased surveillance and awareness. In the USDA context, the backyard designation fails to distinguish the pastured poultry flocks grown for market and profit, which adds further ambiguity to the make-up of the infected backyard flocks. Also, commercial poultry operations continue to be infected at a frequent rate, despite heightened biosecurity.

Pastured poultry producers need to stay informed about the risks associated with Avian Influenza, but realize physical biosecurity cannot provide complete protection for a flock with compromised immune systems. Producers should stand firmly behind pastured poultry production as a natural model of prevention against infection, while also focusing on common-sense biosecurity practices to lessen the farm's exposure to all poultry diseases.

APPPA will continue to provide updates as needed.