TPA NEWSLETTER

"Serving the integrated broiler/breeder industry in Tennessee"

Tennessee Poultry Association

Winter 2021

We wish you all the most wonderful Christmas and Happy New Year

From the desk of TPA Executive Director Dale Barnett

As we've transitioned through the Thanksgiving season on towards Christmas, so have the wild bird migrations. Knowing that bird flu has been running rampant throughout the Eastern hemisphere, it is no surprise that low pathogenic avian influenza (LPAI) found its way into a flock of turkeys in Minnesota on Nov. 22 (see p. 4). Thankfully everything appears to have been contained at that one premises as there have been no further cases reported. The county in which these positives occurred happens to be in the middle of where the unfortunate outbreak is believed to have started that caused so much loss and devastation throughout the upper Midwest in 2014-2015.

The USGS conducted an interesting study (see p. 6) looking at the potential for the blue-winged teal to transfer avian influenza. This information had been on my mind since I first read it in Sept., and I ironically saw a blue-winged teal on display in the lobby of the Ducks Unlimited headquarters a month later while in Memphis for a meeting nearby at the Agricenter. What immediately caught my attention was the information stating that these teals are "typically the first to migrate south in the winter, and the last to head north in the winter." The bird flu transmission concerns do make sense, and this correlation will certainly be something to watch for.

While we cannot make official announcements yet, we are excited to share that the University of Tennessee, Tennessee State University and Tennessee Tech University have recently hired poultry specialists, all three of whom will begin in January. We will feature these folks in the spring newsletter, and we look forward to getting them introduced to everyone and helping them get started in the coming months. Tennessee has not had a dedicated Poultry Extension Specialist since (TPA Hall of Fame inductee) Dr. Charlie Goan retired from UT in 2008, where he served in leadership positions his last few years there. Now both UT and TSU are bringing in folks with a tremendous amount of expertise to work with the growers, the industry and even the backyard flocks (to help ascertain bird health, animal welfare and biosecurity for us all). TN Tech is coming along nicely with their new poultry research facility (see p. 8) and they have also made an exciting hire. With UT Martin and MTSU (see p 30) already having a very positive and appreciated poultry presence, folks are really going to take note of Tennessee once these new hires are in place and the collective teaching, research and extension efforts ramp up even more across our great state!

Ag Enhancement (TAEP) letters for TN growers have been sent out from the TN Dept. of Ag, and hopefully everyone who applied is receiving approval for cost-share funding on eligible equipment. UT Extension will be offering a Master Poultry Producer program, to begin sometime in January (see p. 50). Growers completing this certification will be eligible for 50% cost-share per the TAEP program guidelines. If not aware of this program, contact your local County Extension office or TPA. *continued on page 4*

INSIDE THIS ISSUE

VAXXITEK®
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PREVENTION WORKS
Shaping the future of poultry health

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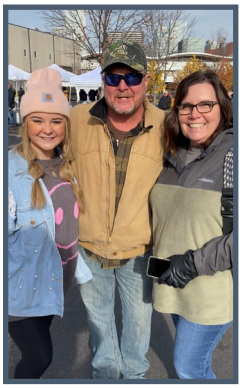
Humbly and gladfully serving others

While the holiday season brings great joy to those of us who do not have to worry about where our next meal comes from, we all know there are those much less fortunate. Opportunities to reach out, share and serve are abundant, and it is so heartwarming to see what some of our TPA members and friends are involved in, not just during holidays but throughout the year.

The **Shooting Hunger** events in TN have now raised the funds to provide over 2 million meals through regional foods banks since 2015. These events are coordinated by TPA's good friends and allied members with the **TN Farm Bureau Federation**, **Farm Credit Mid-America** and **TN Farmers Co-op**. **Tyson Foods OBC** provides the meal for the west TN event held annually in Carroll Co. in June. Under the direction of Keith Riley and the watchful eye of Shane Joyner and Allen Lyle, OBC's team members roll in with their big cookers and provide leg quarters and a full meal for approximately 400-450 people. Blaine Cultra and others from **Tyson Humboldt** now help out at this event, as well. The middle TN event at the Nashville Gun Club in September feeds 500 to 600 people in years when the weather is most favorable. Andrew Blair annually commits **Tyson Shelbyville** to provide for this meal, and pit masters Tim York and Leonard Locke start slow cooking brisket during the very early hours on the morning of the event. In October of this year, a third event was added for the first time in Crossville for the east TN region. TPA Board Member Andy Todd, with Tyson Foods corporate based in Huntsville, lined up leg quarters and grills from **Tyson Albany,** and the cooking teams to feed 350 folks. **Cobb-Vantress** in **Lafayette** and **Dry Creek** additionally sponsored the side dishes and dessert for this event. Cooking teams were led by Brian Mulkey, Cody Weeks and Drew Hurst with **Portacool** (who pulled in with their fancy new cooking rig); Dusty Cagle, Cody McPeake and JL Coe with Cobb-Vantress in Lafayette; and Joshua Morris at Dry Creek. Jeff Ratledge with **Big Dutchman** was also on hand to assist. Because this event is expected to grow, more cooking teams and large grills will be needed next year, so let us know if you are interested in helping out!

As another great example of spreading goodwill, David Wilds shares with us that the **Koch Foods Morristown** complex regularly donates chicken to **The Daily Bread soup kitchen** in Morristown throughout the year and supports the local volunteer fire department that services some of their grower base at their annual event. They also grill out on special occasions for their team members, and they just had a very successful holiday meal for everyone. What fun! We know that other complexes do this as well, and the team members so greatly appreciate these opportunities. James Bradford informed us a few years ago that **Pilgrim's** contributes to their local **Chattanooga soup kitchen** very significantly on an ongoing basis. It appears that all of the integrators in TN and around the country help with their area soup kitchens and food banks to help feed the hungry. Protein, cooking teams and volunteers are often sent out for disaster relief as well at times of floods or tornadoes. **Tyson Foods** sent **30,000 pounds** of protein to Waverly, TN after the flood on Aug. 21st, and we know of TPA grower members who donated funds themselves and coordinated donations from their churches.

TPA recently partnered with The Poultry Federation, **Tyson Foods Albany** and **JB Hunt** to provide protein for country music singer **Tracy Lawrence's *Mission Possible Turkey Fry*** in Nashville on Nov. 23rd at the **Nashville Rescue Mission**. TN does not produce any turkeys, and we were not able to get any donated this year from outside sources due to the national shortage. The Albany complex came through for us, though, and is donating 800 big bird WOGs to replenish this protein for the Nashville Rescue Mission. A special thanks to Tim Esslinger, Tony Delk and Eddie Chancellor for making this happen, and to John Putnam, Jeannell Goines and Rodney Nye with JB Hunt for coordinating the reefer truck delivery from Albany to Nashville for us next week. Tracy Lawrence, Dustin Lynch, Michael Ray and Lainey Wilson performed live the evening after the turkey fry for the volunteers that helped with this event. You should have been there!



TPA members are invited to submit photos and information anytime throughout the year so we can share what everyone is doing in their communities and beyond! Anyone who would like to get involved to sponsor events, donate product or provide cooking teams is encouraged to contact TPA. □

From Dale *(continued from front page)*

While the CFAP2 loss of income determinations through FSA were not perfectly designed for every grower's situation, hopefully most everyone was able to receive COVID relief assistance and has received their payments by now. We know there are some who were denied funding; please know that we sure tried and went to bat for you. There are growers who did not know to apply, and there are growers that did not know to apply for the funds available through the Dept. of Ag earlier on for that COVID relief program, either. Know that we do our best to notify everyone as we can when these opportunities arise. If you were not notified, please contact us to see how to get better connected with the TPA office and your local county offices.

The money allocated through grant and relief programs is going to go to somebody because it has already been appropriated. If one person chooses not to apply, someone else will get it. To those who may not support a particular (or any) federally funded program, that battle must be taken up in Washington where those decisions are made. While we all know there is no such thing as free money, and I'm sure we all share the same concern regarding the state of our national debt, we hope you will take advantage of the available funds and put them to good, responsible use to service debt or make improvements within program guidelines. ◻

H5 avian influenza confirmed in MN turkeys

November 22, 2021 at WattGlobalNews.com by Roy Graber

Low pathogenic avian influenza (LPAI) has been detected in a flock of commercial turkeys in Kandiyohi County, Minnesota. This county was also the site of multiple LPAI cases in 2018 and numerous HPAI cases in 2015. *Click here for full article* ◻

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ADVERTISING INDEX

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Study explores potential of blue-winged teal to transfer avian influenza

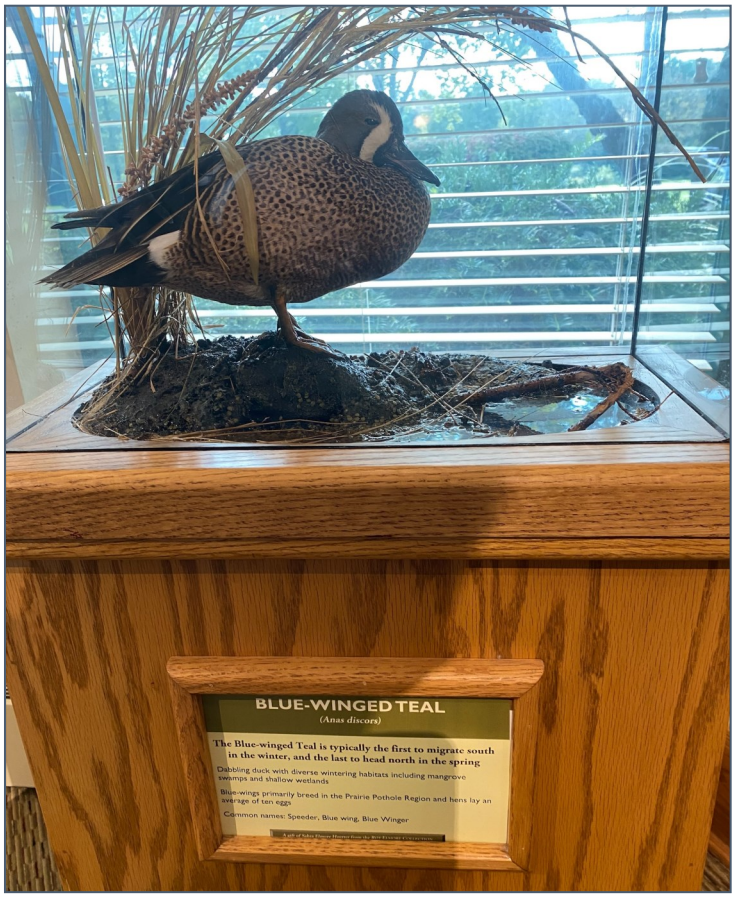
September 22, 2021 at FeedStuffs.com

A first-of-its-kind study by the United States Geological Survey (USGS) and partners provides an initial analysis of when commercial chicken and turkey facilities in the U.S. are at greatest risk to avian influenza viruses from one species of migratory waterfowl.

Scientists identified the migration patterns of blue-winged teal, a common carrier of avian influenza viruses, and when they were most likely to be on the ground and in close proximity to domestic poultry facilities. Blue-winged teal are one of 11 dabbling duck species that regularly breed in North America, and dabbling ducks are the primary waterfowl species known to carry and shed avian influenza viruses in the U.S.

This study is the first to examine the movements of a waterfowl species likely to carry the viruses and their proximity to domestic poultry facilities. It is critical to helping inform poultry industry officials, the U.S. Department of Agriculture and wildlife management agencies as they develop strategies such as surveillance programs to track wild birds and the occurrence of avian influenza to ensure viruses are not introduced into commercial facilities.

Research found that facilities in northern states may be at higher risk for potential transmission during the ducks' fall migration from mid-September through mid-November, as that is when blue-winged teal are in the closest proximity to domestic poultry facilities. Research also found that commercial chicken operations in southern states may be at higher risk of disease transmission during the duck's spring migration from March through April. In contrast to chicken operations, contact probabilities with commercial turkey facilities were found to be relatively low in the spring.



Ducks Unlimited display in Memphis

An outbreak of avian influenza in poultry from 2014 to 2015 resulted in the loss of 50 million chickens and turkeys and cost the economy approximately $879 million dollars. Though not believed to originate from blue-winged teal, this outbreak shows the importance of science to help understand potential risks to the poultry industry.

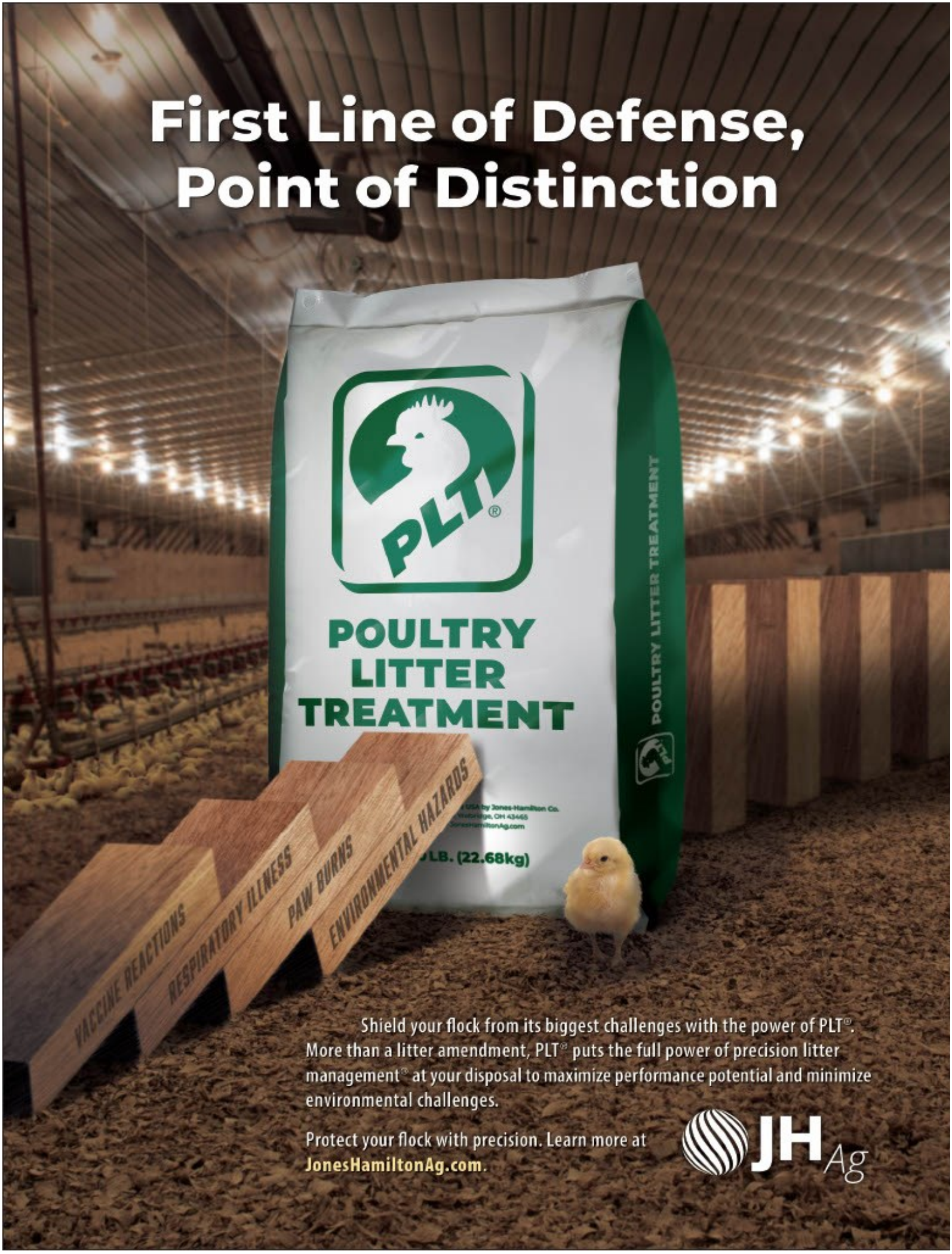
Experts estimate that the global economy could face billions of dollars in financial losses from future outbreaks. Hundreds of human deaths have also been attributed to avian influenza.

"This research serves as the first look into the periods of elevated transmission risk for avian influenza to poultry facilities," said Diann Prosser, research wildlife ecologist at USGS. "While the migration patterns of blue-winged teal are generalizable to other dabbling ducks, additional work is needed to understand how various waterfowl species differ in migration timing and habitat use, as well as which species carry the highest viral loads of the virus that causes avian influenza."

Previous research has indicated that the prevalence rate for these viruses in blue-winged teal is comparable to other dabbling duck species. However, the exact prevalence rate is not currently known for most dabbling ducks within the continental U.S. and will vary depending on local conditions and exposures.

The USGS is conducting additional research to understand migration patterns for other waterfowl species and potential overlap with poultry facilities. USGS scientists and partners are also studying the ability of North American duck species to become infected with avian influenza as well as their ability to carry and spread these viruses across the landscape.

Research was led by the USGS and done in collaboration with the U.S. Department of Agriculture, University of Maryland, Environment and Climate Change Canada, Louisiana Department of Wildlife and Fisheries and U.S. Fish and Wildlife Service.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Emergency Declaration Extended for Live Haul, Feed and Food…

November 29, 2021 - The FMCSA (Federal Motor Carrier Safety Administration) has extended emergency declaration No. 2020-002 until Feb. 28, 2022, in support of emergency efforts related to Covid-19. This extension includes, but is not limited to, **live haul, feed and food for emergency restocking of distribution centers or stores**. For more information go to *https://www.fmcsa.dot.gov/COVID-19*. ◘

Gov. Bill Lee Signs Executive Order Targeting Commercial Truck Driver Shortage

November 22, 2021 information from the Nashville Tennessean by Melissa Brown

Gov. Bill Lee signed an executive order aimed at addressing the ongoing shortage of licensed commercial truck drivers amid a nationwide supply chain slowdown. Lee joined other Republican governors to launch "Operation Open Roads" on Monday, calling for fewer federal regulations in the trucking industry such as dropping the intrastate CDL license age from 21 to 18. An October report by the American Trucking Association estimated the U.S. is short more than 80,000 truck drivers due to myriad issues, including a large proportion of older drivers leading to an increase in retirements. While the driver shortage existed before the pandemic, closed or limited driving schools and DMVs considerably slowed the influx of new drivers. *Click here for full article* ◘

DATES TO REMEMBER

IPPE
January 25-27, 2022
Atlanta, GA

TPA SCHOLARSHIP APPLICATION PERIOD
February - March 2022

TPA SERVICE TECH WORKSHOP
Date pending
Lebanon, TN

REAP GRANTS (FOR RETROFITS)
March 31, 2022 deadline
Click here for more info

SCHOLARSHIP FUNDRAISERS
April 6 & 7, 2022

Check out the exciting progress on the poultry research facility at **TN Tech University**.

*Isaiah Knowles, owner of **Tennessee Valley Aerials**, provided us with these updated photos (taken in October) of the progress being made at the new **Aviagen** feed mill being built in Pikeville, TN. You can see Isaiah's ad on page 30.*

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NCC Submits Comments on the Labeling of Cell-Cultured Meat, Poultry Products

Washington, D.C. (December 3, 2021) – The National Chicken Council (NCC) believes cell-cultured products must be marketed in an appropriate manner that clearly conveys their basic nature to consumers and avoids confusion between cell-cultured protein products and traditional animal protein products.

"This approach ensures a neutral playing field wherein consumers are provided truthful information about cell-cultured products so that they may make choices as they deem most appropriate," said NCC SVP of Scientific and Regulatory Affairs, Ashley Peterson, Ph.D., in comments submitted to USDA's Food Safety and Inspection Service (FSIS) on its Advanced Notice of Public Rulemaking related to the labeling of cell-cultured meat and poultry products.

NCC's position toward cell-cultured products is as follows:

- USDA FSIS should regulate the labeling and safety of cell-cultured products;
- The Food and Drug Administration (FDA) should regulate the technical safety of the cell-culturing technology used to create these products and determine whether the results of this technology are or are not approved food additives;
- It is not appropriate to refer to cell-cultured products using terms such as "clean meat," nor should these products be named or described in a way that disparages conventional animal proteins;
- Cell-cultured products should be named or labeled in a manner that clearly discloses the process by which they were made; and
- Claims that cell-cultured products are superior to conventional animal proteins should be prohibited unless such a claim is substantiated by scientific evidence.

Regarding the labeling of these products, Peterson outlined six recommendations to the agency:

1. FSIS should establish a codified standard of identity for these products;
2. A term such as "Cell-Cultured" should be included in the product name on the label;
3. Cell-cultured products should not be allowed to use defined parts terms, such as "wing," "leg" or "breast;"
4. FSIS should require full sketch approval at least until the agency finalizes applicable regulations;
5. FSIS should work with regulatory partners to ensure that retailers and restaurants also use appropriate terminology when referring to these products; and
6. FSIS should conduct consumer research to understand how consumers view these products. □

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Tennessee animal health division names One Health program director

NASHVILLE – The Animal Health Division of the Tennessee Department of Agriculture announces Dr. Alexa McCourt, D.V.M. as director of the One Health program.

One Health is a collaborative effort among veterinarians, physicians, environmental scientists, public health professionals, and others to address health challenges that affect people, animals, plants, and the environment. Dr. McCourt will oversee the department's role in improving communication and outcomes for a variety of health concerns, including emerging infectious diseases, antibiotic resistance, and emergency preparedness.

"The One Health approach recognizes that the health of people is closely connected to the health of animals and our shared environment," State Veterinarian Dr. Samantha Beaty said. "As a veterinarian, Dr. McCourt is well-versed in these principles. She will provide education and outreach and work with experts in other state departments and veterinarians to optimize the One Health structure to benefit us all."

"Success of the One Health program hinges on communication across all health-related disciplines," Dr. McCourt said. "I look forward to engaging across networks to share valuable information and promote One Health goals. It's essential for people to understand the impact human, animal, and environmental health have on one another."

Dr. McCourt will act as a liaison with other One Health partners, including the Tennessee Departments of Health and Environment and Conservation, the Tennessee Wildlife Resources Agency, USDA's Animal and Plant Health Inspection Service, the Centers for Disease Control and Prevention, academic institutions, and extension services.

In March of 2021, Dr. McCourt joined the Department of Agriculture as a staff veterinarian responsible for engaging with stakeholders regarding animal health in Tennessee, planning for animal-related disasters and emergencies, collaborating to implement state animal health programs, monitoring animal regulatory issues and movement, and developing outreach resources for livestock health and welfare.

Dr. McCourt earned her Animal Science Bachelor of Science degree and her Doctor of Veterinary Medicine from Cornell University in New York. Before moving to Tennessee, she was an associate veterinarian at Bovine Veterinary Services in Dexter, New Mexico. □

NEWS FROM AROUND THE COMPLEXES

Mark Kaminsky, Chief Operating Officer at **Koch Foods** (Park Ridge, Illinois) was installed as 2021-2022 Chairman of the National Chicken Council (NCC) during NCC's Annual Conference in Washington, D.C. It is Kaminsky's second term as NCC Chairman, previously serving from 2018-2019.

Matthew Butler is the new GP Production Manager for **Cobb-Vantress** in Lafayette and will be reporting to **Dusty Cagle** who has moved up to be the area production manager over TN and KY. Dusty reports to Cody Polley, Director for US Production for Cobb-Vantress. Matt is a graduate of TN Tech Univ. in Ag Engineering and previously worked for Reliable Poultry as their project coordinator at the Tyson Humboldt complex.

ALLIED MEMBER NEWS

Cumberland, an AGCO brand that manufactures poultry production solutions, today unveiled an updated brand identity and website. The changes reflect the brand's commitment to helping their customers raise their best birds by delivering the highest quality solutions and real support when they need it. The refreshed identity includes a modernized logo that has evolved from the original.

Sharon Holt has been appointed to the role of Director of Marketing for U.S. Swine and Poultry at **Boehringer Ingelheim Animal Health**. Holt has more than 19 years of leadership experience and an intrinsic knowledge of the Boehringer Ingelheim Animal Health business across manufacturing, supply chain and commercial functions.

Dr. Rick Phillips has joined **Boehringer Ingelheim Animal Health** as the Director of U.S. Poultry Professional Services - Veterinarians. In this role, Dr. Phillips is responsible for leading the U.S. poultry professional services veterinary team, and will work in collaboration with the poultry leadership team to advance the mission of bringing innovative health solutions to poultry customers.

AGCO purchases poultry welfare robotics developer Faromatics

September 17, 2021 at WattAgNet.com by Elizabeth Doughman

AGCO has acquired Faromatics, a precision livestock farming company that created the ChickenBoy, the world's first ceiling-suspended robot designed to monitor broiler welfare. *Click here for full article* ◘

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Could Antimicrobial Peptides Replace Poultry Antibiotics?

October 28, 2021 at WattAgNet.com by Elizabeth Doughman

Unlike vaccines, which protect birds against a specific species or even strain of bacteria, antimicrobial peptides (AMPs) could have broad-spectrum activity against diverse microbial pathogens. AMPs are versatile products that can be formulated as additives in feed or water, topical products and for in ovo injection. Unlike conventional antibiotics, however, AMPs do not trigger resistance to medically important drugs and don't persist in meat or wastewater, making them a safe alternative to preventing and treating bacterial diseases in the post-antibiotic era. *Click here for full article*

Direct-Fed Microbials Can Impact Salmonella Vaccine Efficacy

September 22, 2021 at PoultryHealthToday.com

Some direct-fed microbial additives with live cultures have been found to impact the efficacy of modified-live vaccines. Sanderson Farms' Phil Stayer, DVM, said the firm made the findings relatively recently as part of work to reduce Salmonella levels on poultry going into processing plants. *Click here for full article*

Poultry breeding stocks likely source of Salmonella

September 30, 2021 at PoultryWorld.net by Natalie Berkhout

Researchers at the University of Georgia suggest the likely origins behind the global spread of Salmonella Enteritidis originated in poultry breeding stocks. *Click here for full article*

Genomic Characterization of a Nalidixic Acid-Resistant Salmonella Enteritidis Strain Causing Persistent Infections in Broiler Chickens

September 1, 2021 at FrontiersIn.org by Grayson K. Walker et al

Salmonella enterica subsp. enterica is comprised of more than 2,500 serovars, including the pathogenic Salmonella enterica subsp. enterica serovar Enteritidis (SE) (1). As it relates to poultry production, SE is best known for its ability to survive on and within eggs despite causing no discernable disease in infected layers (2, 3). Because of these adaptations, SE is likely the most frequent cause of human salmonellosis globally (4), and investigations of SE today are largely focused on reducing foodborne illness. As such, the virulence features of present-day SE strains that initially colonize broilers have received relatively little attention. A fundamental understanding of SE genotypes and virulence mechanisms is essential to developing surveillance, treatment, and control approaches for broiler flocks. *Click here for full article* ◘

Integral strategies to improving gut health

September 2021 at The Feed by Boehringer Ingelheim by Edgar O. Oviedo Rondón

Intestinal health is one of the most common topics of discussion in all poultry forums. Its implications in general health, welfare, food safety, profitability, environmental impact, and sustainability are well-recognized. *Click here for full article* ◘

On-site PCR testing could aid smart antibiotic use in mycoplasmosis treatment

October 14, 2021 at PoultryHealthToday.com

Timely use of polymerase chain reaction (PCR) testing on chicken farms can help tackle the problem of antibiotic overuse against mycoplasmosis in countries where this treatment approach is prevalent — which in turn may guard against antimicrobial resistance. *Click here for full article* ◘

Introducing the new standard for Mycoplasma gallisepticum control

September 13, 2021 at ThePoultrySite.com by Elanco Animal Health

New research reveals a superior approach to control Mycoplasma gallisepticu. *Click here for full article* ◘

Gumboro Control in the Field

September 22, 2021 at PoultryWorld.net by Marco Aurélio Elmer Lopes

Gumboro disease virus (IBDV) can persist in the poultry house within the litter for a long time and that´s why it is considered a resident disease. With this in mind, vaccination should aim at protecting and preventing the disease from getting out of control. *Click here for full article* ◘

Frozen vaccines

September 2021 at The Feed by Boehringer Ingelheim by Claudia Osorio

Marek's disease (MD) was responsible for enormous losses in the poultry industry in the 1950s and 1960s. The discovery and use of current vaccines for Marek's disease have been effective in preventing and reducing the occurrence of the typical Marek's disease in the field. *Click here for full article* ◘

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Study finds drug-resistant Campylobacter jejuni connection to pet store puppies

October 06, 2021 at FoodSafetyNews.com by News Desk

According to a study, strains of drug-resistant Campylobacter jejuni have been circulating since at least 2011 and are associated with illness among pet store customers, employees, and others who come into contact with pet store puppies. *Click here for full article*

Cross-protection vaccine protocols key to limiting DMV/1639 spread in US flocks

May 4, 2021 at PoultryHealthToday.com

Thorough vaccination programs and bird surveillance are critical to giving US flocks the best possible chance of protection against evolving strains of infectious bronchitis virus (IBV). *Click here for full article*

Infectious bursal disease virus linked to poor necrotic enteritis outcomes in broilers

October 10, 2021 at PoultryHealthToday.com

Broiler chickens exposed to infectious bursal disease virus (IBDV) are likely to develop more severe cases of the bacterial disease, necrotic enteritis (NE), researchers in Canada have found. *Click here for full article*

Interaction of modified-live and recombinant vaccines shows potential against viral diseases

November 22, 2021 at PoultryHealthToday.com

Field work by Sanderson Farms veterinarians suggests that adding a modified-live vaccine (MLV) to recombinant vaccine programs against three major viral pathogens can have a positive impact on outcomes. “When you have a more rapidly dividing virus in a field challenge, it seems an MLV helps fill in a void that the recombinant cannot cover," explained Phil Stayer, DVM, who led the work. *Click here for full article*

Monitoring field strains key to successful vaccination against IBDV

October 18, 2021 at PoultryHealthToday.com by Daral J. Jackwood, PhD

More than 60 years of research and experience have made it clear that infectious bursal disease in broilers is here to stay, and that unless it’s managed, considerable losses can occur. *Click here for full article*

E. coli vaccination can lead to higher egg numbers, study suggests

October 21, 2021 at PoultryHealthToday.com

Vaccinating birds against Escherichia coli can have production benefits, as well as protecting birds from the disease, researchers have found. *Click here for full article*

A proven reference for the reduction of Newcastle disease

October 27, 2021 at PoultryWorld.net by Ceva

Poultry production faces many health challenges. Mitigation or reduction of virus circulation in between houses or farms is crucial. *Click here for full article*

Five critical factors for in ovo vaccination success

September 3, 2021 at PoultryHealthToday.com

In ovo vaccination has proven popular in commercial hatcheries as it can offer early immunity against prevalent pathogens, consistent vaccine delivery and a less labor-intensive process involving reduced handling of chicks. *Click here for full article*

Going with the Flow: How to Maximize the Effectiveness of Spray Vaccination

November 10, 2021 at PoultryHealthToday.com

Attention to detail is vital when it comes to ensuring that spray vaccinations against respiratory diseases such as infectious bronchitis are as effective as they can possibly be, according to a poultry health expert. Brian Jordan, associate professor at the University of Georgia, said how the vaccine is mixed, the syringes and nozzles used, and the flow rate coming through the nozzles are all critical elements to vaccine-application efficacy and should not be overlooked. *Click here for full article*

Live Production

Tips for uncovering toxicity in poultry flocks

October 12, 2021 at PoultryHealthToday.com

Toxicity is a relatively rare affliction for hens, and tracking down the source can prove challenging, as one case study outlined by a poultry diagnostics expert revealed. *Click here for full article* ◘

MRI technology can help identify which eggs are fertile

November 5, 2021 at WattAgNet.com by Meredith Johnson

During the 2021 Poultry Tech Summit Webinar Series that began on November 2, Dr. Pedro Gomez, CEO, Orbem GmbH explained how his company is using a MRI powered system to help identify which eggs are fertile. *Click here for full article* ◘

Is There a Genetic Solution for Preventing Male Chicks?

November 2, 2021 at WattAgNet.com by Meredith Johnson

Technology that prevents the development of male chicks in the layer industry could potentially save producers billions of dollars annually. During the 2021 Poultry Tech Summit Webinar Series that began on Nov. 2, Dr. Yuval Cinnamon, Ph.D., principal investigator, Agricultural Research Organization, The Volcani Center- NRS Poultry Sustainability and Transformation, presented a genetic solution to egg producers that manipulates the chicken genome. *Click here for full article* ◘

Ethical concerns remain with in-ovo gender determination

November 22, 2021 at PoultryWorld.net by Matthew Wedzerai

Recent studies show that in-ovo gender determination of incubated eggs can provide a beneficial substitute for the large-scale culling of male chicks in layer hen production. However, the technology raises ethical concerns relating to the sensitivity of the embryo, the use of screened-out eggs and the accuracy of in-ovo screening. *Click here for full article* ◘

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As Seasons Change, Hatchery Ventilation Is Key Chick-Quality Concern

November 4, 2021 at PoultryHealthToday.com

Every fall and winter, the poultry industry faces specific production challenges, with hatcheries particularly affected as the environment changes. Chris Williams, PhD, director, technical services devices for Zoetis, spells out why getting ventilation right makes all the difference. *Click here for full article* ◘

Innova invests in poultry mortality recovery robot startup

September 10, 2021 at WattAgNet.com by Elizabeth Doughman

Birds Eye Robotics, a poultry mortality recovery robot startup that could help optimize labor, lower mortality and improve bird welfare, has closed an initial seed funding round. *Click here for full article* ◘

Breed affects broiler gut response to Salmonella

August 30, 2021 at WattAgNet.com by Elizabeth Doughman

A recently completed research study revealed significant differences in the gut health and immune response between slow-growing and fast-growing broilers challenged with Salmonella Typhimurium. *Click here for full article* ◘

Histomoniasis a headache for poultry producers

September 13, 2021 at PoultryWorld.net

Histomoniasis, or blackhead, is a complex disease. Although primarily affecting turkeys with lesions in the ceca and liver, blackhead can also have a significant impact on chickens. *Click here for full article* ◘

How to make a hatching pot

October 18, 2021 at ThePoultrySite.com by Laurence Williams

This is a very interesting article taken from Heifer International; read more and or support their causes at Heifer.org. (*TPA is sure glad that our industry doesn't have to do things this way!*) ◘

What Lessons Can Poultry Producers Learn from Extreme Weather Events?

November 18, 2021 at PoultryHealthToday.com

Extreme weather can pose a serious challenge for poultry producers — and with weather conditions proving ever-more volatile in some of the US's key poultry production regions, improved planning and communication are essential to ensure producers can come through the worst with minimum disruption. That's according to Ronnie Joe Keyes, live production manager for Koch Foods in Mississippi, who has experienced a range of extreme weather events in his 30 years in the poultry business. *Click here for full article* ◘

The role of light, enrichments and technology in welfare

November 2021 in WattPoultryUSA.com by Austin Alonzo

Understanding and providing what the bird needs and wants is the key to advancing broiler welfare, and our November cover story shares insights from animal welfare experts in the areas of breeding, live production and processing about important issues in the field today.

Constant improvement in monitoring technology will power the largest ever gains in animal welfare. *Click here for full article* ◘

Live Production

Light traps in broiler breeder rearing

March 12, 2021 by Cobb-Vantress technical services

Light trap choice and installation are critical when building or upgrading a ventilation system in a pullet rearing facility. The choice and sizing of light traps become increasingly important for successful management during hot weather. Learn how to choose and install the right light trap with this white paper: *https://bit.ly/3mKXAFY* □

Impact on broilers fed anticoccidial-free diets with the DON mycotoxin

October 19, 2021 at AllAboutFeed.com by Regiane Santos

The importance of mycotoxins in the poultry industry may increase when ionophore anticoccidials are banned from feed. Reducing anticoccidials in poultry feed may affect the impact of mycotoxins on broilers. This study evaluated the effect of different levels of DON on the performance and intestinal integrity of broilers.

The ongoing discussion about reducing antibiotics and their potential impact on the use of anticoccidials, particularly those in the class of ionophores, poses a concern for the broiler industry. *Click here for full article* □

Food Safety

Effects of anti-microbial interventions during slaughter

September 21, 2021 at PoultryWorld.net by Vaddu, Kataria, Rama, Moller, Gouru, Singh and Thippareddi, Poultry Science

Poultry processors apply several anti-microbial interventions to avoid cross-contamination of Salmonella, Campylobacter and Escherichia coli. Researchers looked into the impact of pH on the efficacy of peroxy acetic acid in combatting these bugs in the processing plant.

With increasing chicken meat consumption, a greater number of broilers are being raised and processed. Foodborne pathogens Salmonella and Campylobacter are commensals in a broiler's gastrointestinal tract and, in most cases, do not cause any disease in the birds.

The current order in poultry processing presents a potential risk of cross-contamination between carcasses during primary processing (slaughter) and of the meat during any second processing step (cut up and further processing) as a source of human foodborne disease.

In the US, approximately 25,000 notifications of foodborne disease, with 120 deaths, were reported in 2018. The US applies performance standards for poultry processing for Salmonella and Campylobacter prevalence after chilling and for chicken parts. The Salmonella and Campylobacter performance standards for broiler carcasses, chicken parts and comminuted chicken meat are 9.8% and 15.7%, 15.4% and 7.7%, and 25% and 1.9%, respectively.

Avoiding cross-contamination

As live birds are often contaminated with these potential pathogens, in order to avoid cross-contamination and further contamination, poultry processors apply several anti-microbial interventions during the slaughter process.

Anti-microbials are mostly used after picking, in the inside/outside bird washer or in the chiller water. For this purpose, peroxy acetic acid is the preferred chemical typically used by poultry processors at pH levels from natural, ranging between 4.5 and 6.0, up to pH 8.0. At a lower pH the acid is more effective but also affects moisture loss from the carcasses and even causes corrosion of the equipment.

As the US Department of Agriculture performance standards also prescribe that processors utilize Escherichia coli as indicator organisms for process control, in this study the efficacy of peroxy acetic acid in combatting Salmonella, Campylobacter and Escherichia coli was estimated at different pH levels.

The effects were tested on chicken wings that had been artificially inoculated with Salmonella typhimurium, Campylobacter coli and Escherichia coli strains. Inoculated chicken wings were immersed (for 10 or 60 minutes) in peroxy acetic acid solutions at natural pH, pH 8.2 or pH 10.0 and rinsed. Serial dilutions of the rinses were used to estimate the effects on bacterial populations.

Significant results

At neutral pH for 60 minutes the effects were significantly better than with other treatments. In general, higher concentrations and longer exposure resulted in greater reductions in the bacterial populations, while increasing the pH to 8.2 and 10.0 did not improve efficacy.

A strong correlation was found for the effects of the peroxy acetic acid treatment on the indicator strain Escherichia coli and on Salmonella, indicating that this indicator strain can be used for this purpose. □

Esteban nominated for USDA food safety under secretary

November 15, 2021 at WattAgNet.com

Dr. Jose Emilio Esteban has been nominated to serve as the U.S. Department of Agriculture (USDA) undersecretary for food safety. *Click here for full article* ◘

USDA Launches New Effort to Reduce Salmonella Illnesses Linked to Poultry

WASHINGTON, Oct. 19, 2021 — The U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) today announced that it is mobilizing a stronger, and more comprehensive effort to reduce Salmonella illnesses associated with poultry products. The agency is initiating several key activities to gather the data and information necessary to support future action and move closer to the national target of a 25% reduction in Salmonella illnesses. *Click here to read more* ◘

Poland gets go-ahead to send poultry to the U.S.

October 18, 2021 at FoodSafetyNews.com by News Desk

Poland has been given the green light to export poultry products to the United States. The USDA's Food Safety and Inspection Service (FSIS) has reviewed Poland's poultry laws, regulations, and inspection system, and judged they are equivalent to the Poultry Products Inspection Act (PPIA), and the United States food safety inspection system. *Click here for full article* ◘

In-Line Poultry Chilling Could Be Improved Using Kinematics

November 14, 2021 at WattAgNet.com by Meredith Johnson

Immersive chilling while the carcass remains on the shackle is not the most common chilling method. However, a new tactic that uses rotational kinematics could lead to a more efficient in-line immersive poultry chilling process. Dr. Comas Haynes, principal research engineer at the Georgia Tech Research Institute, presented the system during the 2021 Poultry Tech Summit Webinar Series on Nov. 11. *Click here for full article* ◘

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Hyperspectral imaging could help detect woody breast

August 13, 2021 at WattAgNet.com by Elizabeth Doughman

Hyperspectral imaging technology, combined with artificial intelligence and machine learning, could help identify meat quality defects like woody breast during poultry processing. *Click here for full article* ◘

Humane Group: White striping found in 99% of retail chicken

September 21, 2021 at WattAgNet.com by Elizabeth Doughman

The National Chicken Council refutes the claims, calling it (as found in the blurb below) "a non-scientific report." *Click here for full article* ◘

White striping widely prevalent in US supermarket chicken

October 5, 2021 at PoultryWorld.net by Tony McDougal

Investigations reveal some 99% of all store-brand chicken sold in US supermarkets is affected by the muscle disease white striping. *Click here for full article* ◘

Generation Z could be the tipping point for agtech

October 14, 2021 at WattAgNet.com by Elizabeth Doughman

Generation Z could dramatically change the future of technologies used in food production and agriculture. *Click here for full article* ◘

No hormone label means something to consumers

October 7, 2021 at WattAgNet.com by Roy Graber

While added hormones are not used and are even illegal in U.S. broiler production, many poultry companies still use labeling that identify their products as hormone-free. *Click here for full article* ◘

USDA denial of poultry handling rule is subject to Administrative Procedures Act review

October 15, 2021 at FoodSafetyNews.com by Dan Flynn

A federal judge in Rochester, NY, has ruled he can review the denial of a rulemaking petition that suggests USDA's Food Safety and Inspection Service should prohibit behavior that has the potential to cause birds to die other than by slaughter. *Click here for full article*

FDA announces plan to tamp down sodium consumption in U.S. diets

October 15, 2021 at FoodSafetyNews.com by News Desk

The U.S. Food and Drug Administration (FDA) is out with final guidance titled: "Voluntary Sodium Reduction Goals: Target Mean and Upper Bound Concentrations for Sodium in Commercially Processed, Packaged, and Prepared Foods," which provides voluntary short-term sodium reduction targets for food manufacturers, chain restaurants and foodservice operators for 163 categories of processed, packaged and prepared foods. *Click here for full article*

As Port of Los Angeles Import Backups Ease, Empty Containers Pile Up

November 17, 2021 at FoodMarket.com by Thomson Reuters

The number of container ships waiting to enter the busiest U.S. seaport complex hit a new record of 84 on Tuesday, as growing piles of empty containers crowd docks at the Southern California facility that has been racing to remove lingering imports. *Click here for full article*

FTC to study supply chain disruptions

November 30, 2021 at MeatPoultry.com by Erica Shaffer

WASHINGTON – The Federal Trade Commission (FTC) announced an investigation into supply chain disruptions. As part of the FTC inquiry the agency ordered nine large retailers, wholesalers and consumer good suppliers to provide detailed information that will help the FTC shed light on the causes behind ongoing supply chain disruptions and how these disruptions impact consumers and competition in the United States.

Walmart Inc., Amazon.com Inc., Kroger Co., C&S Wholesale Grocers Inc., Associated Wholesale Grocers Inc., McLane Co. Inc. Procter & Gamble Co., Tyson Foods Inc., and Kraft Heinz Co., are subject to the orders. The companies will have 45 days from the date they received the order to respond. The Commission vote to approve issuing the special orders was 4-0.

Trucker Shortages Plague Food Supply Chain

November 3, 2021 at FeedStuffs.com by Jacqui Fatka

The food supply chain was able to weather the pandemic-induced challenges, but the availability of truck drivers holds the key to whether or not there will be a food supply challenge or shortage, says House Agriculture Committee Chairman David Scott, D-Ga. To start off several hours of testimony offered at a hearing on the Immediate Challenges to Our Nation's Food Supply Chain, Scott says it is a "barn burner of a crisis waiting to happen" and adds failure to address it could be detrimental to the nation and the world. *Click here for full article*

PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024

On Oct. 18, EPA Administrator Michael S. Regan announced the agency's PFAS Strategic Roadmap—laying out a whole-of-agency approach to addressing Per- and Polyfluoroalkyl Substances (PFAS). The roadmap sets timelines by which EPA plans to take specific actions and commits to bolder new policies to safeguard public health, protect the environment, and hold polluters accountable. The actions described in the PFAS Roadmap each represent important and meaningful steps to safeguard communities from PFAS contamination. Cumulatively, these actions will build upon one another and lead to more enduring and protective solutions. *Click here for full article*

How PAA affects poultry wastewater treatment systems

November 2021 in WattPoultryUSA.com by Elizabeth Doughman

New research from the Georgia Institute of Technology evaluated the long-term impacts of residual Peracetic Acid (PAA) on biological wastewater treatment systems in poultry processing facilities. *Click here for full article*

Processing method could combat Salmonella in chicken nuggets

October 18, 2021 at WattAgNet.com by Elizabeth Doughman

A new processing method, hydrated surface lethality, could protect smaller-sized meat and poultry products against Salmonella during cooking. *Click here for full article* ◘

Reducing Salmonella, ensuring food safety in poultry production

October 19, 2021 at PoultryHealthToday.com

Reducing the prevalence of foodborne Salmonella is essential if poultry companies are to improve food safety and meet government performance standards. In a new Special Report, Poultry Health Today taps the industry pulse on the latest efforts to minimize risks in live production and processing, with expert insight on the present and future of Salmonella management. *Click here for full article* ◘

US organic chicken production grows rapidly

May 5, 2021 at WattAgNet.com by Austin Alonzo

The organic chicken market in the United States is growing quickly and is poised for further growth in the coming decade. *Click here for full article* ◘

Ukrainian Arrested In JBS SA Cyberattack

November 8, 2021 at Drovers.com by Greg Henderson

A Ukrainian man suspected of collecting $2.3 million in ransom after using REvil ransomware to attack about 2,500 targets, including the June JBS SA cyberattack, has been arrested, according to Europol. *Click here for full article* ◘

Meat alternatives seize opening left by chicken shortages (blog)

September 13, 2021 at WattAgNet.com by Elizabeth Doughman

Plant-based protein manufacturers, such as Beyond Meat and Impossible Foods, view chicken supply chain shortages throughout the U.S. as an opportunity. *Click here for full article* ☐

Plant-based meat sales fall

November 18, 2021 at MeatPoultry.com by Keith Nunes

Many plant-based products don't meet the consumer definition of 'clean label.' *Click here for full article* ☐

Gen Zs, Millennials Spurring Plant-Based Food Growth: Report

October 14, 2021 at ProgressiveGrocer.com by Bridget Goldschmidt

Both dairy and meat plant-based alternatives are forecast to grow through 2024, driven almost entirely by Millennials and Gen Zs, who are selecting these products for better health and because of their interest in sustainability and animal welfare, according to a new report from The NPD Group. Interest in plant-based dairy and meat alternatives by Gen Zs and Millennials reaches beyond burgers and almond milk to various meat, poultry or seafood analogs, flavor profiles and formats. *Click here for full article* ☐

CEO says alternative proteins not sustainable

October 21, 2021 at WattAgNet.com by Roy Graber

Meat and poultry alternatives like plant-based protein products and cultivated meats may be viewed as favorable to some consumers, but ButcherBox CEO Mike Salguero says he is skeptical of the sustainability of those products from an environmental standpoint. *Click here for full article* ☐

Plant protein's popularity stagnating

November 4, 2021 at WattAgNet.com by Roy Graber

Maple Leaf Foods is evaluating its future investments in the plant-based protein sector, as the sales of such proteins have not been as strong as previously projected. *Click here for full article* ☐

Lab-grown meat is supposed to be inevitable. The science tells a different story.

September 22, 2021 at TheCounter.org by Joe Fassler

Splashy headlines have long overshadowed inconvenient truths about biology and economics. Now, extensive new research suggests the industry may be on a billion-dollar crash course with reality. *Click here for full article* ☐

Where's the science to support cultivated meat? (blog)

October 12, 2021 at WattAgNet.com by Elizabeth Doughman

There's currently a lot of interest in growing the cultivated meat industry from start-ups and venture capitalists, but little peer-reviewed research to support the science. *Click here for full article* ☐

Call us cultivated meat, not lab-grown, industry decides

October 5, 2021 at WattAgNet.com by Elizabeth Doughman

Three-quarters of alternative protein companies prefer the name cultivated meat over other industry terms like cultured or lab-grown, according to a recently released survey from the Good Food Institute. *Click here for full article* ☐

USDA invests $10 million in "cultivated meat"

October 18, 2021 at BeefMagazine.com by Amanda Radke

Tufts University earns grant to further develop petri-dish proteins, continuing the narrative that eliminating real meat is a more "sustainable" diet. *Click here for full article* ☐

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JBS acquires cultivated meat company for $100M

November 18, 2021 from MeatPoultry.com by Ryan McCarthy

JBS SA has made its first move into the cultivated meat market. The world's largest meat producer announced on Nov. 17 that it would make a $100 million investment into cultivated protein and also acquire Spanish Company BioTech Foods SL. The company said it would also construct a new $41 million plant in Spain to scale production of BioTech's product.

BioTech Foods was founded in 2017 and operated its first plant out of San Sebastián, Spain. The company is moving toward commercial production of cultivated protein by mid-2024.

The cultivated meat company plans on making various prepared foods, such as hamburgers, sausages and meatballs, among others, with the same quality, safety, flavor and texture of traditional protein. JBS said the technology for the company has the potential for cultivated chicken, pork and fish along with beef.

Additionally, JBS will start the first Center for Research and Development (R&D) in biotechnology and cultivated protein in Brazil. The new center is expected to be open in 2022 and develop new techniques that will accelerate the scale of cultivated products and reduce production costs.

During April, JBS made another meat alternative investment when it acquired Vivera, a large European plant-based food company, at a value of €341 million ($410 million). Three manufacturing facilities in the Netherlands were also included in the deal. □

Petition responses point to direction that regulators are going on lab-grown meat labeling

September 20, 2021 at FoodSafetyNews.com by Dan Flynn

USDA's Food Safety and Inspection Service (FSIS) has responded to petition sponsors with differing opinions about how lab-grown "meat" and "beef" should be labeled. The FSIS Office of Policy and Program Development has denied the U.S. Cattlemen's Association's petition asking the agency to "limit the definition of "meat" and "beef" to products derived from animals "born, raised, and harvested in the traditional manner." *Click here for full article* □

Plant-based startup develops whole-muscle products

September 23, 2021 at MeatPoultry.com by Joel Crews

Alfred's FoodTech has produced prototypes of deli meats and chicken nugget meat alternatives. *Click here full article* □

3D print-and-cook system uses lasers to prepare chicken (blog)

September 29, 2021 at WattAgNet.com by Elizabeth Doughman

Researchers at Columbia University have developed a prototype of a fully autonomous digital chef capable of simultaneously 3D printing chicken and heating the food with lasers. *Click here for full article* □

U.S. tests of McDonald's McPlant Burger begin November 3

October 15, 2021 at WattAgNet.com by Elizabeth Doughman

McDonald's plans to trial the McPlant Burger, a plant-based burger, in eight select U.S. cities starting on November 3, 2021. *Click here for full article* □

Swiss launch world's first plant-based hard-boiled eggs

November 19, 2021 at WattAgNet.com by Mark Clements

The word's first plant-based hard-boiled eggs have been launched in Switzerland. Developed and retailed by the country's largest retail chain Migros and known as "V Loved The Boiled," the product is being rolled out in selected stores this month. *Click here for full article* □

Meat alternative wings company raises $4 million

November 22, 2021 at MeatPoultry.com by Sam Danley

Sundial Foods offers chicken wings with plant-based skin, muscle and bone. *Click here for full article* □

The Ag Watchdog

Environmentalists Criticize Fake Meat
The NY Times reports that environmental activists are skeptical of the eco-friendly claims made by plant-based meat companies. They say companies are not being appropriately transparent about their supply chains, which may have an impact on deforestation. A lifecycle analysis by the Good Food Institute, an advocacy group for fake meat, determined that lab-grown meat would have a greater environmental impact than natural chicken and pork.

Burger King Tests Fake Nuggets
Burger King is testing Impossible Foods' fake chicken nuggets in three markets: Des Moines, Boston, and Miami. Burger King previously released an Impossible Whopper; Bloomberg recently reported that advertising for the product has declined.

UK Government Working on Meat Tax
On the heels of the COP-26 climate summit in Europe, the UK Environment, Food and Rural Affairs Secretary said the government was working on new taxes for meat, dairy, and other parts of the food system that the government claims contribute most global warming. The Prime Minister is married to a vegan animal activist.

Fake Meat Scores Poorly on Taste Tests
A Los Angeles Times writer tasted more than 25 fake meats and reviewed them. Most didn't fare well. One fake nugget was described as "Like what I imagine an actual sponge tastes like." Impossible Foods products, however, did get high scores. Impossible is eyeing an IPO in the coming months. Check our web site www.cleanfoodfacts.com for more info than just taste.

San Fran Passes Anti-CAFO Resolution
San Francisco's Board of Supervisors unanimously passed a resolution calling for a moratorium of animal feeding operations in California. The criminal activist group […] has been leading the campaign statewide. It is not known whether they will attempt to put a moratorium on the state ballot. Federal legislation sponsored by Cory Booker (D-NJ), who is close with HSUS, would impose a national moratorium. □

MTSU Research Spotlight

Research conducted by MTSU student Emily K. Stafford and Dr. Kevin Downs finds that a finer corn particle size fed during the critical first 7 days post-hatch supports a higher growth rate in broilers. Emily will be starting in a supervisor trainee program in the Pilgrim's plant in Guntersville, AL.

PSA 2021: Young broilers benefit from finer corn

October 18, 2021 in FeedStrategy.com By Ioannis Mavromichalis

Earlier research had indicated that finer grinding of corn does not offer any health or performance benefits in broilers. In fact, it was always argued that a coarse particle size supports a healthier gut system as birds need the "grittiness" for their digestive system to perform as it is supposed to. And, in general that remains true.

What has changed, however, is that we continue to market broilers at younger ages, with 35 days being the norm in many regions these days. Thus, every day counts more than it did not long ago when market age was 56 days (at least these are the days I remember as a student.)

Plus, there is a new interest in the performance of the very young broiler (0-7 days), something that was not given much thought back then. Today, it is well established that an early boost in life helps not only lifetime performance but also health and survivability.

With all these in mind, a college student, Emily K. Stafford, from Middle Tennessee State University tested three corn particle sizes in broilers from day 1 to 21 post-hatch. It was revealed that the finer of the three particle sizes (around 800 microns) supported higher growth rate (180 g/day) compared with the two more coarse particle sizes of about 1,400 and 2,000 microns that supported growth equal to 177 and 169 g/day, respectively. This was during the critical first 7 days, after which broilers handled any particle size with equal efficiency.

This significant finding adds to the body of evidence that young broilers respond well to amylase supplementation, gelatinization of starch and finer particle size. Whether this is a reflection of greater potential for growth compared with their immature digestive system or an existing fact we never realized before is a matter of discussion. The point here is that young broilers must be part of the new concept that is called "young animal nutrition." □

Biden Administration Proposes to Revise the Definition of "Waters of the United States"

On Nov. 18, the U.S. Environmental Protection Agency and the Department of the Army announced the signing of a proposed rule to revise the definition of "waters of the United States." This proposal marks a key milestone in the regulatory process announced in June 2021. The agencies propose to put back into place the pre-2015 definition of "waters of the United States," updated to reflect consideration of Supreme Court decisions. *Click here for full article* ◻

EPA Announces Plans for New Wastewater Regulations, Including First Limits for PFAS, Updated Limits for Nutrients

September 8, 2021 - The U.S. Environmental Protection Agency (EPA) released Preliminary Effluent Guidelines Program Plan 15 (Preliminary Plan 15), which identifies opportunities to better protect public health and the environment through regulation of wastewater pollution. Preliminary Plan 15 announces that EPA will undertake three new rulemakings to reduce contaminants including PFAS and nutrients—from key industries. *Click here for full article* ◻

Dept. of Labor Announces Enhanced, Expanded Measures to Protect Workers from Hazards of Extreme Heat, Indoors and Out

September 20, 2021 information from USPOULTRY

Biden is launching a coordinated, interagency effort to respond to extreme heat. To emphasize its concern and take necessary action, OSHA is implementing an enforcement initiative on heat-related hazards, developing a National Emphasis Program on heat inspections, and launching a rulemaking process to develop a workplace heat standard. In addition, the agency is forming a National Advisory Committee on Occupational Safety and Health Heat Injury and Illness Prevention Work Group to provide better understanding of challenges and to identify and share best practices to protect workers. To view the announcements:

https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/20/fact-sheet-biden-administration-mobilizes-to-protect-workers-and-communities-from-extreme-heat/

https://content.govdelivery.com/accounts/USDOL/bulletins/2f297d1 ◻

Expect 2022 cage-free mandates to disrupt US egg market

September 21, 2021 at WattAgNet.com by Meredith Johnson

According to a survey of U.S. egg producers completed by Egg Industry Insight, 69% of respondents expect supply and demand in the egg market to be disrupted at least through April of 2022. *Click here for full article* ◻

Beak trimming - the way ahead for the UK

October 22, 2021 at PoultryWorld.net by Tony McDougal

The UK is moving towards a ban on beak trimming in the next few years. The industry cannot continue pushing the subject into the long grass and will have to deal with it now. *Click here for full article* ◻

Visit our website at www.tnpoultry.org
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Poultry Industry Labor Woes Birth Automation Initiatives

October 11, 2021 in Urner Barry's Reporter magazine by Dylan Hughes

If there is one resounding and almost universal challenge that poultry processors, de-boners, and further processors all have in common, it is the lack of sufficient labor on hand. Although the national unemployment rate continues to descend back down to earth following its COVID-fueled spike to 14.8% experienced back in April 2020, the fact of the matter is that workers are simply not returning to the factory setting. This scenario has not only been exacerbated by the seasonal uptick in outdoor job competition here in Q3, but the latest wave of COVID variant complications has left an otherwise eager workforce watching with bated breath from the sidelines.

While historically robotics has played second fiddle within the poultry industry, the past year and a half have acted as a catalyst towards an accelerated focus on smart innovation.

One company on the cutting edge of the technological shift is Soft Robotics Inc. which recently announced a $10 million Series B extension thanks in part to enthusiastic participation from Tyson Ventures. On top of its existing, "mGrip" modular gripping system which replicates the human hand-finesse required to grip and manipulate delicate and challenging items, Soft Robotics expects to add 3d vision and artificial intelligence technologies to its robotic repertoire. These developments promise to mimic the hand and eye coordination of a traditional line worker. They are also anticipated to bring automation into areas on the line which have been previously inaccessible to conventional robotics, such as bulk packing for fragile and irregularly shaped proteins.

But the robotic revolution isn't just localized to the processing plants. Poultry Sense Ltd. aims to enhance the ability of poultry farmers to continuously track and analyze the health and performance of their flocks. It does this through the use of multiple battery-powered wireless sensors which, capture in real-time environmental and health performance parameters throughout poultry houses. Metrics include bird weight, air pressure, humidity, temperature, and carbon dioxide. This raw data is then fed into an artificial intelligence computer which interprets and translates it into an easy-to-read format. This technology promises not only to cut down on manual labor and individual decision-making on the grow-out side of the business, but it also contributes to enhanced productivity and efficiency, which ultimately leads to enhanced animal wellbeing and better food safety and security.

All in all, there is little doubt that automation and artificial technology have a bright future within the poultry industry. Since the outset of the pandemic, it has been glaringly evident that there are simply some hurdles that cannot be overcome without the intervention of machines. While labor inconsistencies are undoubtedly at the top of that list, animal well-being and educated decision-making are of paramount importance as well. ◻

Could smartwatches solve poultry processing's labor problem?

November 4, 2021 at WattAgNet.com by Elizabeth Doughman

The use of smartwatches to gamify worker performance could help reduce labor turnover and improve worker engagement in poultry processing. *Click here for full article* ◻

Meat Industry Workers '98 percent safer'

October 27, 2021 at MeatInstitute.org by Sarah Little

The North American Meat Institute recently noted that safeguarding procedures that have been instituted for approximately the last year and half have kept workers in the meat industry safer than the general population. *Click here for full article* ◻

Automated picking and hanging saves labor

September 24, 2021 at WattAgNet.com by Austin Alonzo

Poultry hanging and product packing continue to be labor-intensive areas in the plant where automation can reduce staffing needs. *Click here for full article* ◻

Labor/automation

How can technology improve efficiency in the processing plant?

October 2021 at WattPoultryUSA.com by Austin Alonzo

Our October issue offers several articles about robotics and technologies that can help make plants run more efficiently and save resources. This month's cover story discusses the benefits new picking and hanging machinery can provide, including reduced staffing needs and eliminating the need for hanging and rehanging. Those working to automate the poultry plant say there is greater interest now than ever before in robotics.

Additionally, we share information about new robots designed for direct contact with food and the harsh washdown procedures in processing plants. Other robotic technologies can perform tasks that tire workers quickly, such as hanging carcasses on the drip line and supplying carcasses to cut up cones. *Click here for full article* ◻

Poultry Processing Tech: Smarter processing

October 21, 2021 at MeatPoultry.com by Keith Loria

Poultry plant automation is only part of the solution when solving labor and efficiency equations. *Click here for full article* ◻

Explore technologies ready to improve poultry production

October 8, 2021 at WattAgNet.com by Terrence O'Keefe

Learn about the new technologies that will shape the future of the poultry supply chain. *Click here for full article* ◻

Walmart Moves Driverless Truck Pilot into Historic Full Deployment

November 9, 2021 at FoodMarket.com

Walmart is the first company to use autonomous delivery trucks with no safety driver in the "middle mile" of its supply chain. *Click here for full article* ◻

Propane Update

Mont Belvieu Propane Spot Price on Nov. 29, 2021 was at $1.123/gal. The lowest price experienced this year was $0.736 on April 19th and the highest spot price for the year was $1.495 on Oct. 6, 2021, which was the highest experienced since Feb. of 2014.

Allowing for an average of $0.60 per gallon for tariffs, handling and delivery to most areas, the average current retail price should be roughly $1.72/gal. Larger accounts can often negotiate a lower price agreement by as much as $0.05/gal., or more. To follow Mont Belvieu spot pricing go to https://www.eia.gov/dnav/pet/hist/eer_epllpa_pf4_y44mb_dpgD.htm. To further explore and shop suppliers and prices refer to the contact info for our TPA allied member propane companies that is listed at the back of this newsletter or contact the TPA office.

Quotes for Mont Belvieu propane futures is fairly steady at $1.02 for the remainder of the year and then starts gradually declining towards $0.85 by June of 2022 (down slightly from $0.89 for next June when last reported in Sept. of 2021 by TPA). To follow the futures trading for spot pricing go to https://www.cmegroup.com/trading/energy/petrochemicals/mont-belvieu-propane-5-decimals-swap.html#.

For REAP grant funding for energy retrofit projects go to https://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency. The next application deadline is March 31, 2022.

For an update on current FMCSA emergency declarations and HOS waivers go to https://www.fmcsa.dot.gov/emergency-declarations.

To learn more about the Propane Farm Incentive program that can provide up to $5000 toward the purchase of new propane powered farm equipment click here. □

EIA: Natural Gas Supply Below Average, Oil Prices to Decline in 2022

(As reported by TDEC's Office of Energy Programs on Dec. 1, 2021)

According to the U.S. Energy Information Administration (EIA), the amount of working natural gas in storage among the Lower 48 states reached its then-lowest point in March 2021 at 1,760 billion cubic feet (Bcf), or 4% below the previous five-year average. By mid-September 2021, storage levels were 7% below the five-year average. According to the latest Short-Term Energy Outlook, EIA expects U.S. working natural gas to total 1,486 Bcf at the end of March 2022, or 12% less than the previous five-year average for that time of year. This inventory may change significantly due both to demand from cold weather and supply conditions as natural gas producers respond to higher prices.

Since the third quarter of 2020, global consumption of crude oil and petroleum products has increased faster than production, which has caused lower inventory levels and higher crude oil prices. EIA forecasts global crude oil demand will exceed global supply through the end of the year, contribute to some additional inventory draws, and keep the Brent crude oil price above $80 per barrel ($80/b) through December 2021. However, EIA forecasts that global oil inventories will begin growing in 2022, driven by rising production from OPEC+ countries and the United States and slowing growth in global oil demand. EIA expects that this shift will put downward pressure on the Brent price, which will average $72/b during 2022.

To learn more about energy consumption and production in Tennessee—including consumption by energy source, end-use sector, and electricity consumption—see Tennessee's EIA State Energy Profile here. □

Combating Heating Fuel Concerns for Poultry Growers

October 25, 2021 in Farm Management by Dennis Brothers

Propane and natural gas are the primary heating fuels used by commercial poultry growers across Alabama and the southeastern broiler belt. Heating fuel is often a significant portion of the farm's variable expenses. Depending on the farm location, local weather pattern, bird size, and number of flocks per year, heating fuel expense for a poultry enterprise can vary from as low as 10% to as high as 40% of the total variable costs. Most often, propane is paid for on an as-delivered basis or an arrangement is made to be paid at the end of a flock of chickens. Sometimes these delayed payment arrangements carry fees or interest that can increase costs. This often results in an uneven expense outlay throughout the year since most of the heating costs occur during winter months. Even with natural gas that is typically billed monthly, the winter months will bring most of the cost.

With the high cost of heating, it is necessary for a poultry grower to pay attention to price changes and trends in the propane and natural gas markets to better prepare for these large expense outlays that may or may not coincide with flock settlement payments. This knowledge must be combined with long range local weather forecasts and matched up with the current flock cycle. If a grower will be brooding chicks during an especially cold time of year, or even a local snap of cold weather, they will likely incur a larger than average heating bill for that flock. Being able to foresee this potential weather gives a grower the opportunity to take steps to secure ample supply of the lowest-priced heating fuel possible in the short-term. Long-term, it is always beneficial for the poultry grower to closely examine their grow-out structures, looking for every possible way to economically insulate, seal, tighten, and otherwise make their houses more fuel efficient. These efforts will pay dividends for years to come, but what can a grower do to address rising heating fuel prices today? *continued on next page*

Combating Heating Fuel Concerns for Poultry Growers (*continued from previous page*)

Ways to Address Rising Fuel Prices

Emergency Budgeting

The first step is proper emergency budgeting. Having cash set aside for fuel expenses is the best defense against being blindsided by an unexpectedly high fuel bill. This can be a difficult proposition for many farms operating on tight margins, but it can be done with some proper planning and budgetary discipline. It may not be possible to bank an entire year's fuel bill, but that is often not necessary. Having an emergency fund available that would cover one typical cool-weather flock's fuel bill can prevent a disastrous financial situation that can create a cascade of financial catastrophes. It is recommended that every poultry grower build and maintain such an emergency fund to help cover the situations that will inevitably occur.

Forward Contracting Fuel

The second way to lessen fuel cost risk is by forward contracting or forward purchasing fuel. These methods usually involves liquefied petroleum gas (LP). Forward contracting is simply a way of locking in a price today in the expectation of cash prices increasing in the future. Most LP companies have pre-purchase or forward contracting programs, but they are not all the same. Sometimes price changes can occur under a contract. Delivery fees may be added to the price, along with other delivery stipulations. Also, there may be quantity limitations and price differences between quantities contracted or purchased. The exact terms must be understood before signing a price securing agreement. A grower should begin contacting their propane supplier as soon as possible to discuss the opportunities available. It is also a good idea for a grower to discuss the various local supplier's programs with their neighboring growers to find out their experiences.

Purchase During Low-cost Periods

The most secure way to reduce the risk of rising heating fuel prices is to purchase fuel during lower-cost periods, and hold the physical fuel on site at the farm. LP is by far the most feasible to obtain and store in this manner using large storage tanks. To capture the most cost savings, a farm must be able to receive LP in full truckload amounts of typically 8,000 to 9,000 gallons. It is also a good idea to have additional storage so some LP will be always on-hand.

LP tanks can only be filled to 80% of the listed capacity to allow for gas expansion. This means a single storage tank would need to have at least a 12,000-gallon listed capacity to receive a truckload of fuel, and larger to have some gas on-hand at delivery. Unfortunately, the cost today for a large storage tank can be $5 per gallon of capacity, or higher. With additional hook-up costs to be considered, installing a 12,000 to 15,000-gallon tank could easily approach $75,000. Even with savings of over $0.50 per gallon, it could take over 20 years to pay for this option. One positive to consider is that the tank will likely last the life of the farm. While the large storage tank option is the most secure way to reduce the risk of LP price swings, the high cost may keep it from being the best long-term investment for a farm.

The more widely used option to help mitigate fuel cost risk is for the grower to own 1,000-gallon LP tanks that normally reside at each house. If a grower has leased LP tanks, they are typically restricted to only purchasing from the tank owner and, if not forward contracted, at the current cash price. By owning the tanks, the grower can shop around and purchase from whichever company has the best price at the time and can deliver in a timely manner. New tanks cost between $1,000 and $3,500 each. Used or off-lease purchases are also often available. The typical farm could cover the cost of purchasing four new 1,000-gallon tanks in 10 years or less by saving $0.25 per gallon on average. Often, the benefit of timely delivery options from multiple LP companies trumps price when a cold snap hits unexpectedly and fuel is needed immediately.

2021–2022 Season Outlook

Liquified petroleum (figure 1) and natural gas are currently trading at 5-year highs on the commodity market. The current national LP supply is at a deficit, approaching 30 million barrels, or 1.05 billion gallons according to the October 6 U.S. Energy Information Center's inventory update. Low supply going into a high demand time of year typically equals higher prices. LP prices also generally follow the crude oil price, which is currently above $75 a barrel, up from $35 a barrel, because of many reasons including offshore production disruptions.

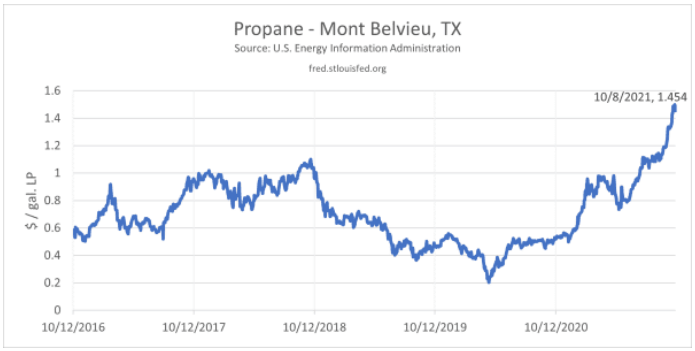

Figure 1. Liquefied petroleum gas (LP) prices per gallon are based on the distribution hub price, which for the Southeast is Mont Belvieu Texas. Add approximately $0.10 per gallon for piping to further distribution points in Alabama. Additional charges for trucking to LP company storage points, farm delivery, and company margin will be added as well.

Since LP and natural gas are byproducts of crude oil production, lower oil production equals lower supplies. When these circumstances are combined with higher trucking costs, it is expected that LP and natural gas prices will continue to rise throughout the winter and could likely reach all-time highs in the short-term. With the limited supplies again this winter, it is unknown if prices in the Southeast will reach the $4.00+ a gallon LP prices that were briefly saw in 2014.

The natural gas commodity price has also more than doubled in the past year. The natural gas crisis in Europe and Asia has created a driver for higher prices as traders purchase various heating fuels across multiple energy commodities. During the weather-related LP supply crunch of 2014, natural gas remained mostly stable. That may not be the case for this winter. The bottom line for poultry growers is that they need to do all they can to prepare for significantly higher heating fuel costs this winter, including taking price security opportunities as soon as possible and doing all the tightening and insulating of their poultry houses they can manage. □

Avoiding Fires in Poultry Litter Dry Stack Sheds

October 27, 2021 at PoultryProducer.com by Tom Tabler

In today's commercial poultry industry, dry stack litter sheds are important components of a waste management program. When litter is periodically removed from poultry houses, it must be handled in an environmentally sound manner. To obtain the most value from poultry litter, producers store it until the appropriate application time for ideal plant nutrient uptake and reduced environmental impact (Nottingham, 2012). Therefore, a litter storage structure becomes critical to a poultry operation's nutrient management program. When properly managed, a storage facility protects litter from the elements, preserves nutrients in the litter, lessens the threat of runoff and water pollution, and allows for proper timing of land application to meet crop and forage needs.

Fire Danger

Producers should be aware, however, of the fire danger associated with storing poultry litter (Figure 1). As microbial activity occurs within the litter, heat and methane gas are produced. Heat is also produced at the boundary layer between moist and dry litter in the storage pile. Spontaneous combustion (self-ignition) in a litter pile can occur from this buildup of heat and methane. Fires may also occur if litter is stacked too closely to the wooden walls of the shed, which can ignite if the temperature in the litter reaches the wood's flash point. The process is similar to spontaneous combustion of hay bales or silage stored in barns or silos, respectively. However, less is known about spontaneous combustion of litter. Additionally, it is important not to drive a tractor on stored litter as this can compact the litter and increase the likelihood of a fire (Figure 2).

Figure 1. Poultry litter spills from a fire-damaged wood structure. Shed fires are a threat when storing poultry litter.

Figure 2. A shed filled with litter that has tractor-tire marks on it.
Do not drive on stored litter with a tractor because this causes compaction and increases the fire danger.
We have known for some time that heat is generated when microbial activity occurs in an insulated environment, such as a garden compost pile or dairy manure stored outside. Overheating and spontaneous combustion in hay barns, coal piles, landfills, and containers of oily rags are not uncommon occurrences. Both biological and chemical factors are likely associated with litter storage fires, although the exact causes are not well understood.

Fires and explosions have occurred before in sanitary landfills that generate combustible methane. For methane to be generated, conditions must be right for the growth of anaerobic bacteria. This includes proper moisture content (greater than 40 percent) and an oxygen-free or very-low-oxygen environment. Methane has a specific gravity less than air and, therefore, can escape to the atmosphere given a proper conduit (i.e., adequate pore space in the surrounding litter). However, litter that is compacted and insulated in a storage shed may not have adequate pore space.

Methane is flammable in air at concentrations of 5 to 15 percent. As such, production of methane in litter storage is a potential fire hazard. If the pile is compacted and insulated by additional litter being placed on top of compacted litter, overheating and spontaneous combustion may occur as temperatures rise above 190°F. While microbial activity may generate much of the heat, it is likely chemical reactions that cause the fire. Because most bacteria are killed between 130°F and 165°F, chemical reactions are most likely responsible for the processes that lead to the actual combustion. *continued on next page*

Avoiding Fires in Poultry Litter Dry Stack Sheds *(continued from previous page)*

Common Risk Factors

There are several common factors that are usually present when a litter storage shed fire occurs:

Moisture. Moisture is a critical factor in all litter storage shed fires. Dry litter does not generate heat well, but wet litter does. Perhaps the most common mistake made by producers is adding moist litter to dry litter already in the shed. A second mistake is allowing wind-driven rain to reach the litter stored in the shed. The layering effect that occurs when new, moist litter contacts old, dry litter creates an insulated heat- and methane-producing area as the dry litter absorbs moisture. Anaerobic bacteria generate about 50 to 65 percent methane, about 30 percent carbon dioxide, and a smaller percentage of other gases (Hess et al., 2018). If the moisture content of stored litter is more than about 40 percent in a pile with little or no oxygen, anaerobic bacteria will grow and produce methane gas. Litter added to the pile at less than 40 percent moisture will lessen the risk of heating and methane production. If the pile is not compacted and has adequate pore space, any methane that is produced can escape into the atmosphere and will not concentrate in the pile.

Pile size. Pile size will affect heat release. Height and width are more important than length of the pile. The larger the pile size, the greater the chance for excessive heat and fire. Small piles provide a larger surface area for heat release. Litter in the shed should not be stacked more than 7 feet high at the center of the pile.

Compaction. Compacting litter encourages anaerobic conditions. Compacting traps heat in the pile and lessens the available pore space for dissipating heat and methane.

Layering. Layering new, moist litter on top of old, dry litter creates a dangerous, heat-producing situation. Only dry litter should be added to litter already in the shed.

Caked litter. Caked litter is often wet litter with a high moisture content and can increase the risk of litter storage fires. It is best to separate caked litter from dry litter in the shed until the caked litter has dried.

Best Management Practices

- Dry litter is best to lessen the fire danger. Protect litter in the shed from blowing rain. Do not add wet litter to dry.
- Do not compact wet or dry litter as this encourages anaerobic conditions and increased heat and methane production.
- Do not stack litter over 7 feet high.
- Store wet, caked litter in a separate area from dry litter.
- Stack litter away from wooden walls and support posts, to the degree possible.
- Monitor temperatures at various locations within the pile on a regular basis with a 36-inch compost thermometer (Figure 3). Temperatures of 160°F or less are normal. Temperatures above 160°F are an indication that closer attention and caution are needed. Remove any materials that have a temperature greater than 180°F. If temperatures are 190°F or greater, or if the pile is smoldering, notify the local fire department and get instructions on safely removing the material from the storage shed. Use extreme caution when digging into the pile because a smoldering pile can burst into flame when exposed to oxygen. Be aware that a garden hose is not adequate fire suppression equipment if a litter pile bursts into flame. Spread the litter on a field using caution to avoid catching dry grass or other combustible materials in the field on fire.

Figure 3. Use a compost thermometer to check litter temperature.

- Do not store expensive farming equipment such as tractors, combines, decaking machines, windrowing equipment, hay mowers, rakes, and balers under the litter storage shed.
- A thermometer measuring 140 degrees F.

Summary

Litter storage sheds are a vital part of every broiler operation's nutrient management program. Litter storage allows flexibility in timing land applications and lessens the possibility of polluting surface and ground waters, as could occur with litter stored outdoors. Litter storage shed fires are possible because of heat and methane buildup in litter stacked in the shed. Spontaneous combustion in a litter pile can occur under the right conditions. Several common factors can lead to spontaneous combustion in a litter pile. The most critical of these factors is likely litter moisture content; however, pile size, caked litter, layering, and compacting the pile are also important. Proper precautions will greatly reduce the risk of a litter shed fire. Good management and common sense will help keep your litter shed intact and working for you for many years to come. □

Moving away from skip-day feeding in broiler breeders

November 3, 2021 at PoultryWorld.net by Treena Hein

Skip-day feeding is still used today in North America and is allowed in the EU. However, daily feeding to a higher weight provides not just welfare benefits but economic benefits as well.

To meet consumer demand and ensure profitability for broiler producers, the breeding of broilers globally over the years has resulted in birds that grow quickly and are very lean. The broiler breeder hens that produce broiler chicks also have these same characteristics that must be carefully managed. In short, this means that they must be fed so that they do not grow too quickly or store too much fat.

While some fat deposition is certainly necessary for egg production, too much fat deposited around the ovaries lowers the number of eggs produced per broiler breeder hen.

The feeding strategy used in North America and other parts of the world to control growth rate and excessive fat deposition, resulting in birds that reach a set weight and produce a given number of eggs, is skip-day feeding, i.e. feeding every 48 hours.

Not best for welfare or profits

Skip-day feeding comes with welfare concerns (and indeed, skip-day feeding is banned in some European countries). Furthermore, according to Dr Martin Zuidhof, professor of Poultry Systems Modeling and Precision Feeding at the University of Alberta in Canada, it is also not the best production strategy to use today from a profit standpoint.

"We here in North America should be moving away from skip-day feeding because it's severe, but also because it's not the best way to operate a broiler breeder farm with today's genetics," explains Zuidhof. "Our research shows that it's more beneficial, economically, to raise broiler breeder hens to a higher weight – and yes, you can achieve this by feeding a bigger meal every 48 hours, but that's a long time between meals – and you can also get there by feeding every day. And you get a different metabolic effect that provides outstanding performance."

Skip-day feeding, he says, results in some of the feed going into fat storage, but he and his colleagues have found that "when you feed every day, all the feed goes into running the body and producing eggs. So you get increased egg production. But we found that you get better performance of the broiler chicks as well."

Genetic potential – room for improvement

Building on a 2018 study, 'Lifetime productivity of conventionally and precision-fed broiler breeders', Zuidhof discovered that hens fed to a heavier weight produce broiler offspring that at 42 days have a 5% increase in body weight compared to conventionally-raised broilers. The genetic potential for 145 chicks/broiler breeder hens also shows there is room for improvement over the current rate of 115 (average in Alberta). He plans to more fully examine the impact of maternal body weight on reproductive efficiency and offspring performance, and notes that Aviagen is interested in this research.

Less aggression among hens

In addition, his PhD student, Mohammad Afrouziyeh, has shown that feeding every day provides economic returns through reduced aggression. With skip-day feeding, birds are more aggressive perhaps because they are hungry more of the time or experience stress because they are uncertain when their next meal will be.

Farmers, therefore, see high rates of feather pecking, more mortality and lower overall flock performance compared to flocks fed every day. Of course, the economic benefits of better flock performance, more chicks per broiler breeder hen and better offspring performance are fully realized at integrated operations. However, if an operation is strictly broiler-breeder it will still reap economic benefits from better flock performance and more chicks per hen and thus be able to offer their broiler producer customers better chicks.

Zuidhof also notes that from a product marketing perspective, chicken from broilers farmed in such a system could be certified welfare-friendly and fetch a premium price and simply outcompete conventional chicken because customers prefer it.

A feeding system for broiler breeder hens

To research broiler breeder hen feeding strategies, Zuidhof has created a precision feeding system. Each broiler breeder hen has an RFID chip and can enter the feeder many times a day but is only provided feed according to how far her weight deviates from the daily pre-programmed target weight. And although such a system is not yet economically viable commercially, there is every reason to believe it may become so.

"I'm working with an engineer to make my system more economical," says Zuidhof, "but we need to understand that precision feeding also provides benefits for male fertility. On broiler breeder farms there is wide variation in the males, more than with hens, but precision feeding results in very strong male uniformity with a high fertility rate. Infertile eggs are a huge economic problem, with males typically having to be replaced at a rate of about 40% in a process called spiking. So increasing male fertility is another huge economic benefit of precision feeding that will make the return on investment timeline all the more attractive."

Automatic weighing of birds

He further points to the possibility of a simplified precision feeding system where there is a scale that birds must stand on to feed and, while they are not identified individually, they are all automatically weighed throughout the day as they approach the feeder, their weights compared against a target weight and meal volumes provided accordingly. *continued on next page*

Moving away from skip-day feeding in broiler breeders *(continued from previous page)*

Other factors that influence chick production

However, Zuidhof notes that precision feeding is only one factor that influences chick production. Photoperiod and other factors also need to be carefully managed. And because there is insufficient collective knowledge on broiler breeder hen nutrition, he also wants to study nutrient requirements and how feed timing and the use of different formulations can affect performance.

It has been found, for example, that a calcium-rich feed in the afternoon is best for layers because the calcium is then much more readily available for egg formation. This is something that needs to be further investigated in broiler breeder hens.

More transparency and 'real change'

Looking forward, Zuidhof says, "I think it will be hard to convince the industry to move away from skip-day, but as the consumer landscape continues to evolve, the longer we use it, the worse it looks."

More transparency is needed, in his view, along with real change. "We need to show that, yes, we have skip-day, but we're discovering there are ways to manage feeding that are better for the birds. The good news is that these ways are better for producers' bottom line as well." □

New Research by UT Extension Investigates Litter as a Corn Fertilizer Applied at Planting

December 2, 2021 by Shawn Hawkins, Ph.D.

With support from the Tennessee Corn Promotion Board, the University of Tennessee Extension is investigating a strategy corn producers can use to combat rising fertilizer costs. Many corn growers have access to broiler litter, an organic fertilizer that can provide a wide range of plant available nutrients in one pass across their fields. However, the challenge in using litter for corn is the relatively low nitrogen availability, which is prone to vary from year to year. The new fertilizer strategy being tested seeks to apply only litter at corn planting to supply all the needed starter nitrogen fertilizer, as well as 1-2 years of mineral nutrients, and then to top dress the corn at growth stage V6 with a split application of commercial nitrogen fertilizer. The production risk is minimal because corn nitrogen demand is low before growth stage V6.

Either broiler litter or commercial fertilizers were applied to corn plots at planting at the Milan Research and Education Center, followed by a varying rates of commercial nitrogen fertilizer (**Figure 1**). The first-year results indicate equivalent corn yields for these fertilization strategies.

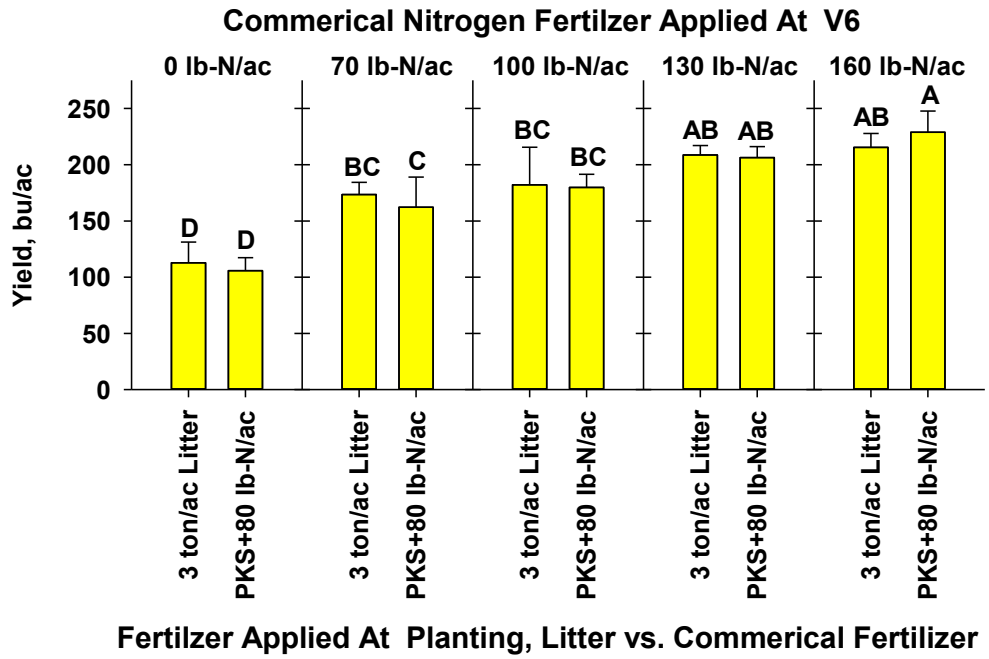

Figure 1. *Corn yield for plots fertilized with either broiler litter (3 ton/acre) or commercial fertilizer at planting. Commercial fertilizer applied at planting included: phosphorus (80 lb-P_2O_5/ac) and potassium (80 lb-K_2O/ac) at rates based on soil test results, sulfur (12 lb-S/ac), and nitrogen (80 lb-N/ac) fertilizer. Both sets of plots then received varying rates of commercial nitrogen fertilizer when the corn reached the V6 grow stage (about 12" tall). Letters indicate the results of a statistical analysis of data from replicate (4) plots; bars that do not share a common letter are significantly different. Yields for the plots fertilize with only litter at planting were not significantly different from those that received commercial fertilizers at planting.* □

Stop the Economic Drain of Catastrophic Losses in the Poultry Industry

► Members of the contract poultry growing community understand the anxiety that spring and summer bring to the farm. Both contract growers and company personnel watch as the dark clouds of summer afternoon storms gather and silently hope for the best.

Will this storm hit our farm? Will my backup system be up to par? Will our complex suffer major losses of birds and revenue this summer? If history repeats itself as it so often does, the answers will not all be pleasant. Every year farms are affected by a lightning-caused power loss or other storm-related utility interruptions. And every year, somewhere, large numbers of birds are lost due to insufficient operation of the farm backup systems. The next obvious question is What can we do about it?

A recent evaluation of all catastrophic losses across several poultry complexes yielded valuable information on the causes of these catastrophic bird losses. These are things we may have intuitively understood, but the data have shown we have an opportunity to address the problems directly. First, let us look at the breakdown of losses and the ultimate costs.

The categories were defined as follows:

- **Generator/ATS.** Any loss stemming from failure of the generator, automatic transfer switch or the associated switches, and disconnects used for emergency power delivery.
- **Alarm System.** Any loss when the alarm system did not function or was not set properly, preventing growers from being alerted in time.
- **Controller Backup System.** Any loss that should have been avoided if the house controller backup system had worked as expected.
- **Other Avoidable.** Losses where some form of mismanagement or simple equipment failure occurred but did not involve the three systems listed above. Example: "Grower forgot to turn the water back on after placement, 2500 birds lost to dehydration."
- **Unavoidable.** Natural disasters or random equipment failures that could not have been foreseen or avoided. An example would be a direct lightning strike that started a house fire or a massive wind event blowing a house down.

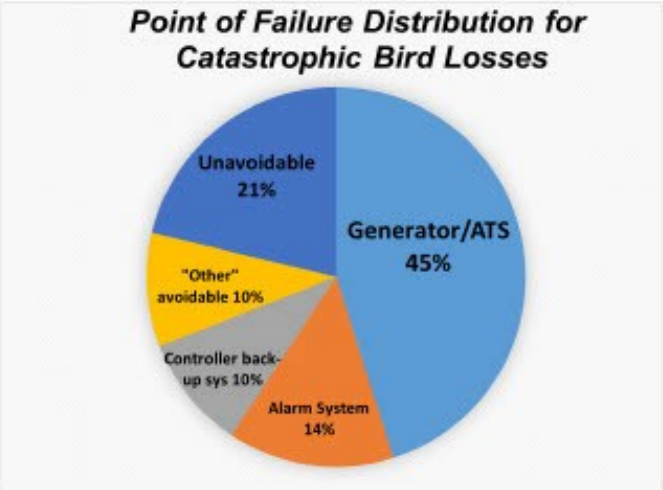

Figure 1. Analysis of the catastrophic losses over 2 years for approximately 300+ million square feet of housing space. A catastrophic loss in this case is defined as an event resulting in several hundred or more birds dying at once, not related to disease.

The losses above combined to equal 1,381,622 birds lost to catastrophe. If those birds had been grown to an average weight of 6.5 pounds, they would produce 8,980,543 pounds of live weight. At an average grower

continued on next page

ANR-2698

pay of $0.06/pound, this equates to $538,833 lost revenue to these growers. Assuming an average size poultry house of 40 feet x 500 feet housing 24,000 birds, this is equivalent to 57.5 total houses lost. If a single grower loses one such house with those numbers, it will cost him or her $9,360 in lost grower pay. A four-house farm loss would cost a grower $37,440 in pay. Some of these losses may have qualified for insurance coverage to the grower, but certainly not all of them, and insurance will never cover 100 percent of any loss. These losses in revenue do not include the additional loss of utility and labor cost already invested in the birds by the grower or the expenses incurred from mortality disposal following a catastrophe.

As seen in figure 1, almost half (45 percent) of these losses were caused by problems with the generator, automatic transfer switch, and associated switches. Most of those losses could have been avoided with better system maintenance. For this group of growers, that meant approximately $242,000 of contract pay was lost due to questionable generator system maintenance. Perhaps proper maintenance plans were in place, but simply not executed. Either way, these losses should not have happened.

For comparison, let us look at the average cost of a proper generator maintenance call performed by a professional service technician. Considering the average size of generators on modern poultry farms and the normal maintenance items included in a proper maintenance call, a grower should expect to pay between $750 and $950 for an annual service. This should include oil service, filter changes, fuel system checks, all generator components and controls checked, and a full electrical check of all switches and controls. This price should also cover basic replacement items such as belts and hoses and batteries as needed. At an average cost of $850 per service, a grower can afford to have this maintenance performed annually for 10 years and still have spent less than it would cost if he or she were to lose one house of birds and 40 years if it saves an entire four-house farm. The history of catastrophic losses proves that this is a serious concern that growers cannot afford to overlook.

Let us take this a step further—how much do these losses cost the company? That number is far larger. The actual live production cost lost by the company depends on the age of the birds that were lost. Company executives estimate that the cumulative bird losses represented above account for approximately

Figure 2. Typical poultry farm 100 to 175 hp backup generator.

$1,660,000, or $0.18/pound for a 6.5-pound bird, in lost input cost to the integrator (feed, veterinary, etc.). This does not account for the lost revenue the company was counting on receiving from sales of the product. The national composite weighted average for broilers in the United States in October 2020 is valued at $0.74/pound. This number fluctuates over time and does not consider product value upgrades realized through further processing and cooking. Using a $0.75/pound value and adjusted for dressing percentage and combined with the production cost, the total company loss estimate amounts to $0.93/pounds and results in a $6.37 million loss for the catastrophes noted above, and $2.87 million of that would be attributable to generator/ATS issues alone.

Suppose that an average complex processing 1.25 million birds per week and supplied by 150 broiler farms were to support its broiler program by contracting and supplying annual generator maintenance service for every farm. Such a program would likely cost between $110,000 and $150,000 per year. Using the company's combined loss estimate per pound as outlined above, a four-house farm catastrophe costs the company approximately $427,440. If this program only saves two houses of birds across the complex, the program has paid for itself. One four-house farm saved pays for the program in production cost alone. This is "cheap insurance" defined! Similar programs have been implemented in a few locations, and the returns are quickly evident with reports of losses being averted on multiple farms. *continued on next page*

Table 1. Estimates of Grower Revenue Losses Resulting from Total-Loss Catastrophes

	1-House Farm	4-House Farm
Birds/House	24,000	96,000
Pounds/Bird	6.5	6.5
Total Pounds	156,000	624,000
Value/Pound	$0.06	$0.06
Lost Revenue	$9,360.00.....	$37,440.00.....

Grower estimates of losses in revenue resulting from single-house total loss and four-house–farm total loss catastrophes.

Table 2. Estimates of Company Revenue Losses Resulting from Total-Loss Catastrophes

	1-House Farm	4-House Farm
Birds/House	24,000	96,000
Pounds/Bird	6.5	6.5
Total Pounds	156,000	624,000
Value/Pound	$0.93	$0.93
Lost Revenue	$106,860.00...	$427,440.00....

Company estimates of losses in revenue resulting from single-house total loss and four-house–farm total loss catastrophes.

Good generator maintenance is something that neither grower nor integrator can afford to overlook. However, it is also one more thing that a grower operating on an already tight margin may indeed overlook to save money or time. Integrators who have the most to lose and the most to gain should consider ways to take this variable out of the picture. Contracting directly with a reputable generator company for complex-wide annual maintenance is likely the most effective route to accomplish the goal. Covering that cost would be a positive move in building grower relations, taking a burden away, and helping protect their grower partners from what can be a devastating financial hit to a family farm.

Dennis Brothers, *Associate Extension Professor*, Agricultural Economics and Rural Sociology, Auburn University

For more information, contact your county Extension office. Visit www.aces.edu/directory.

New October 2020, ANR-2698

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Block, Tackle, Win - Minimum Ventilation and Moisture Control

October 2021 – National Poultry Technology Center
Jess Campbell, Jeremiah Davis, John Linhoss, Kelly Griggs, Cody Smith, Carson Edge, and Martha Rueda

We are often asked what is the best thing a producer and company can do to perform well during cold weather? Here is our simple answer to this question: Win minimum ventilation and moisture control. This is achieved by developing an effective, clear, and simple gameplan that everyone can execute. This newsletter is focused on helping producers and company service representatives prepare houses for efficient and effective cold weather minimum ventilation. We decided to toss in some football theming along the way to get motivated. It is time to call your minimum ventilation offense out onto the field, huddle up, and ready to score some moisture control points!

Block The Right Vents

Non-brooding end (a.k.a. off-end or grow out-end) perimeter air inlets (a.k.a. vents or baffles) should be blocked off during brooding to make sure most/all minimum ventilation air enters the barn in the brooding chamber first and targets the ceiling peak. Not blocking vents is probably the most common minimum ventilation mistake we see producers make during brooding. Any air that enters the non-brooding area of the house and exits the house does not count toward minimum ventilation. Only air that enters the bird area counts. If you do allow air to enter and exit the non-brooding ends and bypass the brooding chamber, that air should be deducted from the minimum ventilation calculations. If a producer uses all the perimeter inlets in the barn during minimum ventilation and does not compensate for this air bypass, this is a "false start". As shown in Figure 1, arguably 50% of the ventilation air will bypass the brooding chamber. In this case, for example, a minimum ventilation run time of 60 seconds ON (240 seconds OFF) would need to be increased to 120 seconds ON (180 seconds OFF) to compensate for the off-chamber bypass ventilation. This would be a good starting point.

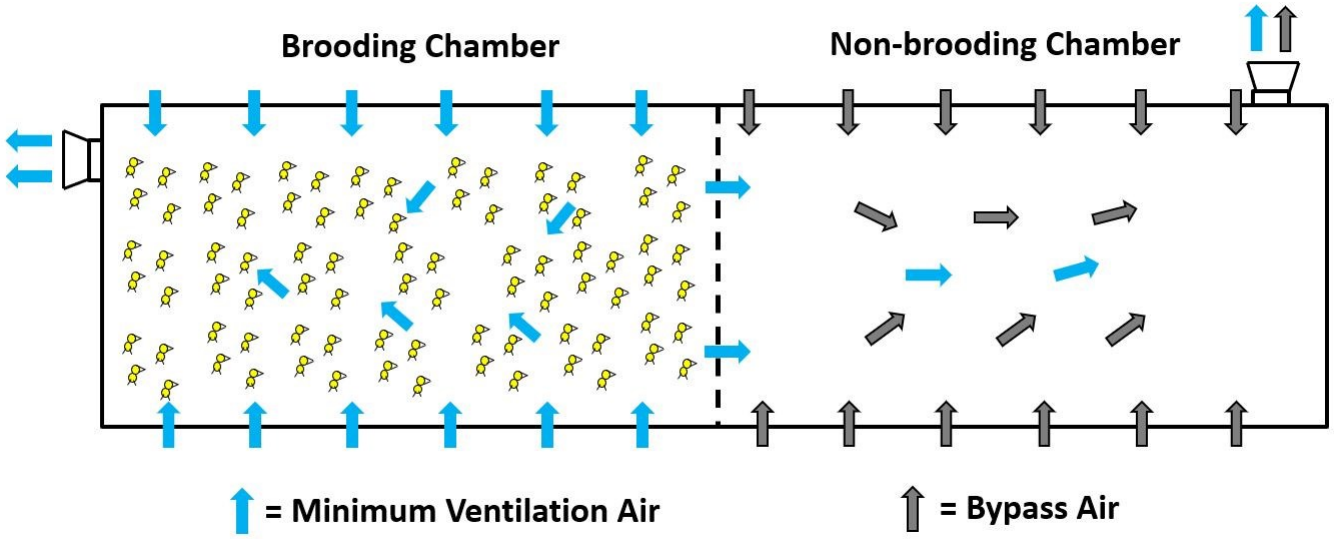


Figure 1: This is an example illustration of a common minimum ventilation setup that can be difficult to get moisture under control. Notice one fan is ventilating the brooding chamber and the other is ventilating the non-brooding chamber. If the producer is counting both fans for minimum ventilation this would not give enough brooding chamber air exchange and likely undesirable results.

We have a simple choice to make to improve brood chamber air exchange. Either add the additional time or close the non-brooding area vents. It is acceptable to open some vents in the back of the house but keep in mind that air does not count toward minimum ventilation. We are also looking for about a 1.5-2" vent opening and for some houses this cannot be achieved without blocking some selected vents to get the proper opening. Below are some additional tips on vent management and moisture control.

Missing vent door insulation: All perimeter vents must be fully insulated so they tightly close when they are not in use. Any missing insulation (figure 2) will likely be the source of a cold-air leak that throws air directly to the floor. This air works against litter drying (incomplete pass), drafts chicks in the vicinity, causes uneven floor temperatures, and causes excessive heater run time. If the insulation cannot be repaired, it is time to replace the door.

Vents in front of temperature sensors: We do not want cold outside air landing directly on sensors. Most producers know to shut off air inlets that are directly adjacent to temperature sensors to keep this from happening. Leaving these vents open can cause unnecessary temperature fluctuations, excessive heater run times, and bird movement away from this zone. Sometimes monitoring heater zone run times during brooding can help you spot a potential problem if you notice a zone that is running significantly more than others. It is common for the front and back brooding chamber zones to operate more than the middle zones due to heat being lost through the brood curtain or endwall. *continued on next page*

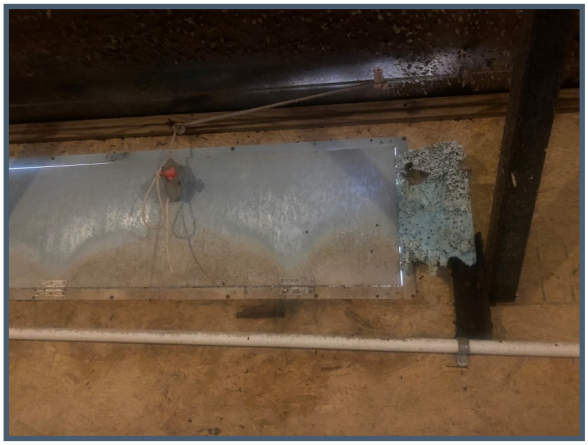


Figure 2: This inlet door is a considerable source of air leakage when shut. The insulation has been damaged by rodents. The door does open and shut but when it is shut the door does not seal and is leaking on 3 sides. It is overdue for repair or replacement. This can often be found on inlets located closest to the feed cross-fill entrance to the house where rodents have direct access to the house wall and attic space.

Figure 3: The insulation in this inlet door is almost totally disintegrated by darkling beetles. This vent is another major source of air leakage and is made worse by the insulation settling out of the door and getting wedged between the door and frame. The metal door appears to be in good shape so we would recommend replacing the insulation on this door. This was not staged.

Figure 4: This photo was taken from inside the house looking through the sidewall vent. The bird wire is almost 70% blocked with dust and feathers. It was next to a sidewall exhaust fan. This vent wire is way overdue for a good cleaning.

Dirty exterior bird wire: Sometimes we find vent screens that are partially or almost entirely blocked off by dust, feathers, and dander (figure 4). This is especially true for vents that are located adjacent to sidewall exhaust fans or across from tunnel fans from adjacent houses. Make sure all perimeter inlet bird wire has been cleaned, to ensure that all vents used are capable of unrestricted inlet airflow.

Damaged doors: Ideally every inlet door, in use, opens evenly and the same amount during each minimum ventilation cycle. Any bent, rusted, or damaged doors should be repaired or replaced prior to cold weather operation. Any damage that forces the door to either not shut or not open (whether partial or completely) may cause cold air to land on the birds, drinkers, and litter, causing more harm than good. This would be considered intentional grounding and a 10-yard penalty!

Cables and sprockets: Vent cables can stretch over time and create uneven door openings and leave vent doors at the ends partially open, when it should be sealed shut. Take time to adjust vent door connections to make sure all doors open the same amount. Leaving doors open unevenly will cause excessive heater run times in those locations. Sprockets must be greased, and pulleys must be inspected for signs of wear and possible failure.

Vents without latches: Simple inexpensive vent door latches can be purchased from your local dealer, online, or homemade, if they are fully functional. Many poultry houses are not designed to operate without closing a select number of vents during cold weather brooding. If you struggle during cold weather moisture control, this could be part of the reason. *continued on next page*

Block, Tackle, Win - Minimum Ventilation and Moisture Control *(continued from previous page)*

Tackle Maintenance on the Right Fans

Tackle minimum ventilation fan maintenance now. The minimum ventilation fans are the most important fans on the farm – the MVP! Why is this? Consider this calculation for a broiler house, minimum ventilation fans cycle every 5 minutes (300 seconds). Every hour these fans start and stop 12 times! Every day these fans start and stop 288 times. During cold weather when the house stays in minimum ventilation for the full brooding cycle (about 10 days), these fans cycle 2,880 times. If we only estimated that these fans were used for seven flocks and only used during brooding (very conservative). Then, they cycle 20,160 times in a single year! This is just for the time they run during minimum ventilation. These fans require more routine inspection and maintenance. Focus here can make you and neglect can break you.

In addition to their high workload, these same fans operate under high static pressures at 0.10" to 0.16" inches of water column every time they run. These fans are often wet with condensation and covered with dust and dander. Dirty interior fan shutters cause these fans to work even harder during operation.

Let's consider this simplified example. If the current fans used for minimum ventilation are operating at 60% of the original designed capacity, the only way to get adequate moisture removal is to add an additional 40% to the current minimum ventilation time to make up for the inferior capacity. This additional 40% run time would have to be maintained throughout the flock unless the fans are properly tuned up. Now is the time to conduct a complete tune up on all fans used for minimum ventilation. This means a complete thorough inspection of each minimum ventilation fan for any maintenance repairs that would hinder (or potentially hinder) performance and air exchange. Additional tips are below.

Shutter and light trap maintenance: Shutters must be cleaned every flock. Any damaged shutter blades, rail guides, butterfly springs, or blades stuck in the open position must be repaired or replaced. Sometimes shutters need a good cleaning during a flock as well. All pullet house minimum ventilation fans must have light traps removed, inspected, and thoroughly cleaned every flock. Don't let dirty shutters or light traps keep you out of the endzone!

Figures 5 & 6: These photos were taken from a pullet house that was only 5 years old. We are pretty sure the light traps, shutters, and fans had never been cleaned. There was about 0.25" of dust on shutters, about 2.5-3" of dust settled in the bottom of the light traps and framing, light traps were totally coated in dust, and about 1-1.5" in the fan housing. This is a personal foul!

Belts: All minimum ventilation fan belts should be new or like-new. Compare used belts to new ones or measure them to tell. Don't assume they are good – verify that they are good. Leaving loose worn belts on fans is equivalent to leaving the 3rd string running back in the game. Don't expect to get a touchdown. If you can hear the fan squeal on the motor pulley from the control room – fix the fan!

Tensioners: All fan tensioners (figure 7) must be lubricated, exercised, and tested for worn or dry bearings. If the bearing is frozen and the belt is cutting into the pulley this is grounds for a targeting call. The tensioner should immediately be ejected from the game and replaced with a new one. Most tensioners freeze up in the relaxed position so make sure the tensioner is placing some stretch force on the belt.

Bearings: All bearings must be greased or replaced (figure 7). You wouldn't leave a lineman with a torn ACL in the game, would you? Don't leave a dry bearing on a fan. Get it fixed.

Win Minimum Ventilation and Moisture Control

It is general practice to maintain house relative humidity between 50 and 70% during cold weather. Check this first thing in the morning for best results and make adjustments. If vents are not opening enough, we need to consider blocking the right vents. This forces air to target the ceiling peak (or as close as possible) so that we allow the incoming air to acclimate, mix, and provide fresh air to our house and birds. This is how we remove moisture from the house. We want this to happen as evenly down the house as possible.

continued on next page

Block, Tackle, Win - Minimum Ventilation and Moisture Control *(continued from previous page)*

Some variations to this are acceptable and this will take some experimenting and adjusting to make it work properly for each house and farm. Tackle maintenance on the right fans. We need every possible cubic feet per minute (cfm) out of each fan used for minimum ventilation every cycle. Anything less than 100% is a loss in adequate air exchange and static pressure ability. Any inadequacy in fan performance will have to be made up with additional run time. It is that simple. Don't forget the importance of house tightness and operating stirring fans during cold weather preheating and brooding to help you get the edge on your opponent. Win moisture control with effective and efficient minimum ventilation. It may not be the only thing that counts, but it sure carries the team a long way in the right direction – it allows you to compete! We need 100% focus and effort here. Down, set, hut!

Figure 7: The bearing inside this tensioner pulley failed and the pulley not longer turned. The fan was still in operation and the belt was cutting into the plastic pulley. The squealing noise due to the friction between the belt and plastic pulley could be heard from outside the house and piqued our interest. Hey referee we have an injured player on the field here!

For more information on ways to improve minimum ventilation see our newsletter #86 Four Common Minimum Ventilation Mistakes from December 2014 on our website poultryhouse.com. □

Cumberland Tips for Proper Poultry House Ventilation During Winter Months

ASSUMPTION, Ill. (November 9, 2021) — Proper poultry house ventilation is important year-round, but especially during winter months to protect bird health and promote energy efficiency.

"Ventilation is not always top of mind for many producers heading into winter," says Austin Zimmerman, AGCO protein sales engineer for Cumberland, a manufacturer of poultry production equipment. "But it's a crucial time to assure good air quality and avoid any pockets of gas."

Zimmerman offers the following recommendations:

- Controller settings – Ensure that poultry house environmental controls are set properly for the winter season, including inlet openings, fan speeds and different ventilation staging. "Check that inlets allow the right amount of air into the building, based on fan speed and the amount of CFM being pulled out," he advises.
- Check inlet operation – Inspect inlets for any blockage, damage or wear that may prevent normal air flow. "Be sure inlet mechanisms are greased and respond correctly to the control inputs," Zimmerman adds. "If not, an inlet calibration or reset may be necessary."
- Fan maintenance – Inspect fans to confirm they are in good working condition and that fan belts have the proper tension. Also, confirm that fan shutters are in good working condition.
- Temperature sensors – Ensure that all temperature sensors are working correctly, as these regulate the operation of fans and heaters. If one sensor is not working, replacing it is optimal. Otherwise, simply remove it, as the remaining sensors can still function.

Zimmerman notes that proper ventilation not only promotes poultry health and productivity, but also provides an economic benefit for producers. "Too much cold air entering the building during winter can cause excessive use of heaters, wasting propane." □

A Better Way to Raise Chickens for Low-intensity, Small Stakeholders

October 29, 2021 at UTIAnews.tennessee.edu

Researchers Introduce New Production Model to Improve Rwandan Broiler Industry

KNOXVILLE, Tenn. – How can rural producers in Rwanda better produce chicken for both household consumption and profit? University of Tennessee researchers are suggesting a hybrid model for the Rwandan broiler industry, among other improvements, in a new journal article.

Tin roofs and farm plots dot the shores of Lake Ruhondo in Northwestern Rwanda. Villages like this one were the focus of the researchers' study on the rural broiler industry. Photo courtesy UTIA.

Using improved breeds and modern practices, Rwandan farmers are empowered to raise 100-bird flocks as a source of income and nutrition. Photo courtesy UTIA.

"Strengthening smallholder engagement and integration in the Rwandan commercial broiler value chain" delves into the broiler industry in Rwanda. Through a four-year pilot project with the Smith International Center, researchers partnered with a Rwandan feedmill, Zamura Feeds Ltd., to test a poultry production model with smallholders. Through this project, the US and Rwandan teams examined the broiler supply chain, and identified ways to improve the broiler industry in Rwanda. The effort was funded under the umbrella of a Global Development Alliance (GDA), which leverages public-private partnerships, in this case between: USAID/Rwanda; a US-based foundation, the African Sustainable Agriculture Project (ASAP); a Rwandan animal feed company, Zamura Feeds Ltd.; and a U.S. land-grant institution, the University of Tennessee Institute of Agriculture (UTIA).

The pilot project employed a private extension model to train, supply resources for, and support 500 smallholder households to successfully produce broiler chickens to modern industry standards for consumption and market sale. Trained farmers raise broilers in their own bio-secure 100 sq. ft. coop, with 100 birds on a 45-day grow-out cycle. Through the provision of micro-loans for capital and recurring expenses and guaranteed broiler chicken buyback at the end of each grow-out cycle, the goal was to create a sustainable model for small-scale broiler production that can be scaled up throughout Rwanda and the surrounding region.

"Smallholders in Rwanda make up over 80% of farmers and cultivate less than 2.2 acres of land on average. Many farmers already raise chickens in traditional backyard settings, primarily for home consumption," said Hans Goertz, the project administrator and co-author of the article. "In a densely populated, mountainous country such as Rwanda, intensifying poultry production presents an avenue for households to diversify and improve their income and nutrition."

Currently, the Rwandan broiler industry consists of smallholders and large poultry operations. The smallholders operate most farms in Rwanda, but they are limited to low-intensity, village poultry production. Large operations and importers supply the commercial meat market in East Africa.

However, hybrid asset-building broiler operations are a third production model that provide an entry point for smallholders in the broiler industry. Integrating this method would allow the small operations to increase production and profitability.

To scale up this model, the researchers had several suggestions across the broiler value chain, including: reducing the recurring costs of production; providing value chain trainings; facilitating microfinancing; reducing post-harvest costs; increasing local demand for broiler meat; and strengthening policies in support of smallholders.

"Hybrid production models like the one described in this article provide a way for smallholder farmers to start broiler enterprises and compete with larger producers in the market," Goertz said, "We hope that this body of research contributes to a more vibrant, inclusive broiler sector that provides economic opportunities and affordable animal protein for East African communities." *Click here for full article*

Researchers on the project are Tom Gill, Smith Chair in International Sustainable Agriculture; Regis Nisengwe, Ph.D. candidate, Department of Forestry, Wildlife and Fisheries, UTIA; Hans Goertz, project development specialist, and David Ader, assistant director, both with the UTIA Smith International Center; Katie McGehee, director of the African Sustainable Agriculture Project (ASAP); Ritah Nshuti, chief operations officer, Zamura, Ltd.; Alon Gumisiriza, poultry technician manager, Zamura, Ltd.; Mike Smith, professor of animal science, UTIA (retired); and Emily Urban, graduate student, School of Integrative Plant Science Soil and Crop Sciences Section, Cornell University. ◻

Empowering Women

August 2021 in Mississippi Landmarks by Bonnie Coblentz

MISSISSIPPI STATE UNIVERSITY
DEPARTMENT OF POULTRY SCIENCE

Poultry Education Boosts Food Security

Empowering women to be better poultry farmers has a direct benefit to their families and addresses the significant problem of food insecurity in Africa.

Dr. Tom Tabler, (former) MSU Extension poultry specialist, joined forces with Dr. Margaret Khaitsa, MSU College of Veterinary Medicine epidemiologist, on a project to help African women provide more dependably for their families by becoming better chicken producers.

According to the United Nations Food and Agriculture Organization, women are responsible for half of the world's food production. That number rises to 60–80 percent in most developing countries and 70–80 percent in sub-Saharan Africa.

"Despite these facts, women's key role as food producers and providers and their critical contribution to household food security is only recently becoming recognized," Khaitsa said.

"My passion is to empower women at many levels and integrate the results to change systems with a broad goal for empowering more women to self-sufficiency, better livelihoods, and community development," she said.

MSU has partnered with the University of Tennessee (UT) in Knoxville; Sokoine University of Agriculture (SUA) in Morogoro, Tanzania; Columbus State University (CSU) in Columbus, Georgia; Makerere University (Mak) in Uganda; and Higher Education Resources Services, East Africa (HERSEA), a non-governmental organization that advances women in that region, on this project funded by the USDA Foreign Agricultural Service.

Food insecurity is a major problem in many parts of Africa, and Tabler is leveraging his expertise and MSU resources to directly address the education problem. Efforts are aimed at women smallholder farmers who raise chickens to provide food for their families and communities.

"Chickens don't take a lot of land or require a lot of food, and women are the ones who raise the chickens," Tabler said. "There is an extreme shortage of Extension agents in Africa, and so there is no help for women to understand how to take care of chickens and what to do if they get sick."

In the initial visit to Uganda, Tanzania, and Kenya, Tabler and faculty from UT, SUA, CSU, Mak, and HERS-EA developed a curriculum for training women smallholder poultry farmers. Topics included poultry nutrition, diseases, and biosecurity for hen layers, broilers, and breeders.

Since his return, he has developed six Extension publications on topics ranging from village chicken production to indigenous breeds. These documents are being translated into Swahili—the main language of the region—by collaborators at Sokoine University.

Support of international agriculture and food security are major focus areas of MSU as outlined by President Mark Keenum. Tabler and Khaitsa's work in Africa acts on this priority and perfectly reflects Extension ideals.

"Part of Extension's mission is to take research-based information and distribute it to the general population," Tabler said. "The general population around the world needs science-based information just as much as Mississippi folks do. This outreach to sub-Saharan Africa fits with MSU's mission to be a leader in the international ag theater and is another opportunity to get Extension and MSU agriculture to other parts of the world."

Numerous internal MSU and federal grants make this work possible. It began with the MSU International Institute and National Strategic Planning and Analysis Research Center and now extends through 2022 with USDA-FAS funding.

After initial training visits to Uganda, Tanzania, and Kenya, two MSU specialists are leveraging MSU resources to develop a curriculum that educates women smallholder farmers who raise chickens to provide food for their families and the community. (Submitted photo)

Laying hens provide protein for women and children in sub-Saharan Africa. Women are primarily responsible for food production in the region, but there is little educational support for them in this task. (Submitted photo)

Baylor - grandson of Chance Bryant, Cobb-Vantress

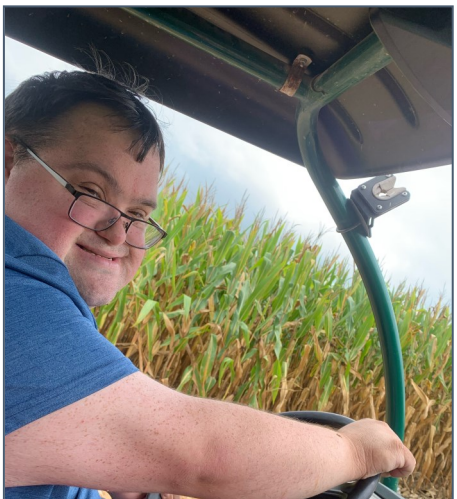
Haidyn - granddaughter of Ryan & Tammy Russell

Bella - granddaughter of Ryan & Tammy Russell

Clayton and Andy Johnson Cottonridge Farms

Blakely Johnson Cottonridge Farms

Allie, Tristan and Taylor Johnson Cottonridge Farms



Lane - son of Jenny Agapiou

Lakynn and Landen- granddaughter & son of Jenny Agapiou

Lance and Laney - children of Jenny Agapiou

TENNESSEE MASTER COMMERCIAL
POULTRY PRODUCER
PROGRAM

The University of Tennessee Extension will launch the inaugural offering of the new Tennessee Master Commercial Poultry Producer Program during January 2022. The Program focuses on Commercial Poultry Producer knowledge for efficient and profitable poultry operations.

Subject matter will include topics on:

- Animal welfare, environment and litter management
- Mortality management
- Biosecurity
- Land application management of litter
- Farmstead management and maintenance
- Precision Poultry Farming techniques and applications

Instructors will include:

- Dr. Tom Tabler, newly hired UT Extension Poultry Specialist starting in January 2022.
- Dr. Shawn Hawkins, UT Extension Animal Waste Management Specialist
- Dr. Maria Prado, DVM, UT Veterinarian working with the Commercial Poultry Industry
- Dr. Robert Burns, UT Extension Precision Livestock Management Specialist
- Dr. Charles Martinez, UT Extension Farm and Financial Management Specialist
- Dr. Yang Zhao, Precision Poultry Management researcher
- Dr. Forbes Walker, UT Extension Environmental Specialist
- Invited speakers from leading poultry companies and other universities

A total of 16 educational credits are being offered. **Completing 12 of these credits qualifies commercial poultry producers for a three-year period to participate in the Tennessee Agricultural Enhancement Program (TAEP) for Poultry Growers at the 50% Cost Share rate.** By completing the Master Commercial Poultry Producer Program, growers qualify for a cost share match of up to $6,000 in the 2021-2022 TAEP program toward the purchase of equipment including propane tanks, generators, litter management equipment, overhead trolley systems, feed and poultry scales, and a wide variety of other practical poultry farm equipment including biosecurity items.

TAEP
Farm Investment Project
Tennessee Agricultural Enhancement Program
TN Department of Agriculture
http://www.tn.gov/taep

The Tennessee Master Commercial Poultry Producer program **will utilize only pre-recorded YouTube video recordings for maximum grower accessibility and convenience** while maintaining your farm biosecurity!

Register for the program at your county Extension office. The Program Fee will be $100, payable to your County Extension Office, and will help UT Extension offset the cost for the invited speakers.

Please contact Dr. Shawn Hawkins for more information: shawkins@utk.edu; 865-207-7156.

COMMODITY REPORT

December 2, 2021 at Chick-News.com by Simon M. Shane

Commodity prices and volumes fluctuated over a wide range over the past five trading days but settled relatively unchanged on Thursday December 2nd. The CME quotations for corn and soybeans were down 0.3 percent and 1.7 percent respectively, compared to Thursday November 24th. Factors influencing prices in either direction included:

- Release of the November 9th WASDE with 85 percent of the harvest completed at the time of publication. The report raised corn production 0.3 percent and lowered soybean production by 0.5 percent. The November WASDE retained the projected ending stocks for corn and raised soybean ending stocks by 8.4 percent. (Transitory upward pressure)
- Increasing weekly ethanol production (transitory upward pressure on corn)
- Projections for new-crop soybeans in Brazil indicate a potential record. (Moderate downward pressure on soybeans)
- The Central Government of China authorized a buying cycle for soybeans as crush margins improve. (Upward pressure on soybeans)
- S producers are now receiving and conversely livestock producers and ethanol refiners in the Midwest will pay above $5.80 per bushel for corn in December, down 0.3 percent and crushers will pay $12.50 per bushel for soybeans plus transport and basis during January 2022, down 1.7 percent from the November 24th quotation for current month delivery. Soybean meal was unchanged for December delivery compared to last week reflecting lower exports, but higher domestic demand coupled with fluctuation in the price of soybeans during past weeks.
- The FAS Export Report released on December 2nd for the week ending November 25th reflecting market year 2021-2022, confirmed that outstanding export orders for corn for the new market year amounted to 25.78 million metric tons (1,016 million bushels) with 9.65 million metric tons (380 million bushels) actually shipped. During the past week orders for the 2021-2022 market year amounted to 1.02 million metric tons (40 million bushels) with 0.93 million metric tons (36.7 million bushels) shipped. For market year 2022-2023 outstanding sales amounted to 0.56 million metric tons (22 million bushels) with 0.30 million metric tons (11.8 million bushels) sold this past week.
- The FAS Export Report released on December 2nd for the week ending November 25th reflecting market year 2021-2022, recorded outstanding export orders for soybeans amounting to 16.10 million metric tons (590.9 million bushels) with 21.1 million metric tons (773.2 million bushels) actually shipped. Weekly soybean orders attained 1.06 million metric tons (38.9 million bushels) with 2.33 million metric tons (85.5 million bushels) shipped.
- For the week ending November 25th 146,700 metric tons of soybean meal and cake were ordered for the market year 2021-2022, up 7.1 percent from the previous week. With restoration of operations covering most of the lower Mississippi terminals after damage from Hurricane Ida, 263,900 metric tons of meal and cake was shipped, down 4.9 percent from the previous week and representing 14.5 percent of the total 1,851,000 metric tons shipped during the current marketing year to date.
- Projected harvests and ending stocks in the U.S. were incorporated in the November WASDE allowing almost complete clarity on quantities harvested and the effect of trade and domestic consumption on ending stocks, up 9.2 percent for corn and 7.2 percent for soybeans.

The following quotations for delivery in the months as indicated were posted by the CME at 14H00 on December 2nd 2021, compared with values posted at close of trading on November 24th 2021 (in parentheses):

COMMODITY

Corn (cents per bushel)	Dec. 577 (579)	March ‘22. 577 (585)
Soybeans (cents per bushel)	Jan. ’22 1,244 (1,266).	March ’22. 1,250 (1,277)
Soybean meal ($ per ton)	Dec. 358 (358)	March ’22. 347 (349)

COMMODITY CHANGE FROM PAST WEEK FOR MONTH OF DELIVERY AS INDICATED

Corn: Dec. quotation down 2 cents per bushel (-0.3 percent)
Soybeans: Jan. ’22 quotation down 22 cents per bushel (-1.7 percent)
Soybean Meal: Dec. quotation unchanged (0)

- For each $1 per ton (2.8 cents/bushel) change in corn the cost of broiler production would change by 0.06 cent per pound live weight
- For each $10 per ton change in the price of soybean meal the cost of broiler production would change by 0.25 cent per pound live weight

Year-to-date, the algebraic escalation in the prices of major ingredients has added 3.1 cents per live-weight lb. to broiler production cost.

According to the November 9thWASDE, corn harvested in calendar 2021 will attain 15,062 million bushels with ending stocks projected at 1,493 million bushels, up 0.3 percent from the 15,019 million bushels projected in the October 2021 WASDE Report. Values will be updated reflecting production, ongoing export volumes and domestic use in the December WASDE report. Close to all suitable corn and soybeans were harvested by November 28th. Total corn stocks on September 1st amounted to 1.24 billion bushels down 36 percent from September 1st, 2020. *continued on next page*

COMMODITY REPORT *(continued from previous page)*

Soybeans continue to be the beneficiary of export demand by China and other nations in addition to domestic livestock production. The USDA projected a 2021 crop of 4,425 million bushels in the November WASDE. Ending stocks according to the projection will be 340 million bushels, up 7.2 percent from the October WASDE Report. Total soybean stock on September 1st amounted to 256 million bushels down 51 percent from September 1st, 2020, indicating the extent of exports during the 2020-2021 market year.

According to a release on November 15th by the National Oilseed Processors Association, 184.0 million bushels of soybeans were crushed in October compared to an expectation of 182 million bushels. Previous monthly crush values in 2021 were 153.8 million bushels in September, and 165.1 million bushels in August. October 2021 crush can be compared with 185.3 million bushels in October 2020. Lower production in recent months was attributed to extended maintenance in anticipation of the fall harvest.

For consecutive calendar years 2017 through 2019 the U.S. supplied 34.4 percent of soybean requirements for China amounting to 95.5 million metric tons. This was followed by a decline to 16.9 percent of 88.5 million metric tons in 2018 and 16.6 percent of 88.0 million metric tons in 2019. The USDA anticipated that soybean imports by China would attain 95 million metric tons during the 2020-2021 market year but in reality, only 60.3 million tons was shipped through August 2021.

For the 2019/2020 market year China imported 2.1 million metric tons of corn from the U.S., 4.8 percent of total exports of 43.3 million tons, but 12 percent less than in the 2018/2019 market year. The USDA-FAS documented sales of U.S. corn to China through late August 2021 comprising the 2020/2021market year amounting to 73 million metric tons (2,876 million bushels) with 93 percent shipped. ◘

Mexico bans GMO corn imports

October 13, 2021 in High Plains Journal by David Murray

A Mexican health regulator has, for the first time, denied permits for the importation of corn genetically modified to resist glyphosate. *Click here for full article* ◘

Obituaries

"Honoring TPA members who have gone before us"

22 yr. old **Will Warner** tragically lost his life August 13, 2021. He is the son of Christy and James Warner of Bedford Co., growers for Tyson Shelbyville.

Pete Souphom was tragically killed on October 10, 2021. Pete was 52 yrs. old and was a grower for Tyson Shelbyville in Bedford Co.

Coell Hickman, age 62, passed away Oct. 14th at the Macon Co. Hospital due to a massive heart attack we are told, while birds were going out. Coell grew chickens in the Hermitage Springs community in Clay Co.

Jeff Stacy, 66, of Charleston, TN (no pic available) passed away on Sept. 9, 2021. Jeff was a grower from Charleston, TN.

Please submit member obituaries to tracy@tnpoultry.org.

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WHY MEASURE CHICK YIELD?

- Chick yield (the weight of the chick at hatch as a percentage of egg setting weight) is a simple method of checking whether hatch timing and incubation parameters are correct.
- Chicks with a low yield have either been:
    1. hatched for a long time before they were removed from the hatcher or,
    2. incubated at a high temperature or a low humidity.

These chicks are at risk of being dehydrated and perform poorly on the farm.

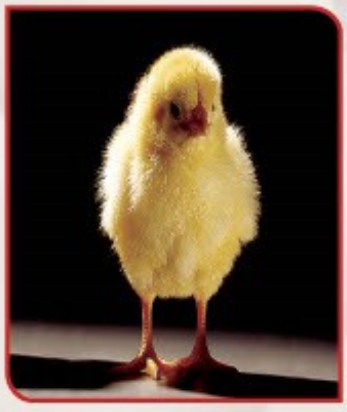
- Chicks with a high yield have either:
    1. only just finished hatching when they were removed from the hatcher or,
    2. have been incubated at a low temperature or a high humidity.

If placed on the farm quickly these chicks will not be ready to eat and drink and will tend to be lazy.

OPTIMUM CHICK YIELD

> 68%
High
This chick will be lazy and not ready to feed and drink when placed on farm.

67 - 68%
Ideal
This chick will be active and ready to feed and drink when placed on farm



< 67%
Low
This chick will be dehydrated and have little yolk reserve. Often very active and noisy.

Note: *If chicks are to be placed onto the farm the day after hatch 1% should be added to the above ranges, i.e. optimum chick yield would be 68-69%.*
If eggs are stored 0.5% should be added for each week of storage i.e. for eggs stored for 2 weeks optimum chick yield would be 68-69%.

THE PROCEDURE FOR MEASURING CHICK YIELD

- To accurately measure chick yield and check the hatch timing of a flock:
  - monitor the chick yield from 3 incubator trays
  - use a balance that can weigh a whole incubator tray of eggs or a box of chicks to an accuracy of at least 5 grams (0.2 oz)

Note: *This procedure can be easily combined with the monitoring of egg water loss.*

Step 1:
Weigh empty setter tray – record weight.

Note: *This can be done at setting or transfer.*

Step 2:
Fill setter tray with fresh eggs. Exclude any cracked or poor shell quality eggs.

Step 3:
Weigh full setter tray – record weight and number of eggs on tray.

Step 4:
Label the tray so that it can be relocated at transfer.

Note: *Trays should be located in the incubator so that one is positioned near the top, one near the middle and one near the bottom of the incubator rack.*

Step 5:
At transfer ensure the hatcher tray is labelled so that it can be associated with the correct egg tray.

Step 6:
At hatch take-off, zero the balance with the empty chick box.

Note: *If the chicks are to be vent sexed then the chicks need to be weighed before sexing.*

Step 7:
Count all the good chicks from the hatcher basket into the box - record number.

Step 8:
Weigh the full chick box – record weight.

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CALCULATION OF CHICK YIELD

$$\% \text{ Chick Yield} = \frac{\text{Average Chick Weight}}{\text{Average Fresh Egg Weight}} \times 100$$

Empty tray = 1205g;
Full tray @ set = 8201g; Number of eggs = 132;
Full chick box @ hatch = 4268g; Number of chicks = 120

$$\% \text{ Chick Yield} = \frac{4268 \div 120}{(8201 - 1205) \div 132} \times 100$$

$$\% \text{ Chick Yield} = \frac{35.6}{53.0} \times 100$$

$$\% \text{ Chick Yield} = 67.1\%$$

This calculation also applies to imperial measurements

Example of chick yield recording sheet. This sheet also records egg water loss information as the two quality control processes can be easily combined - see **How To... Measure Egg Water Loss.**

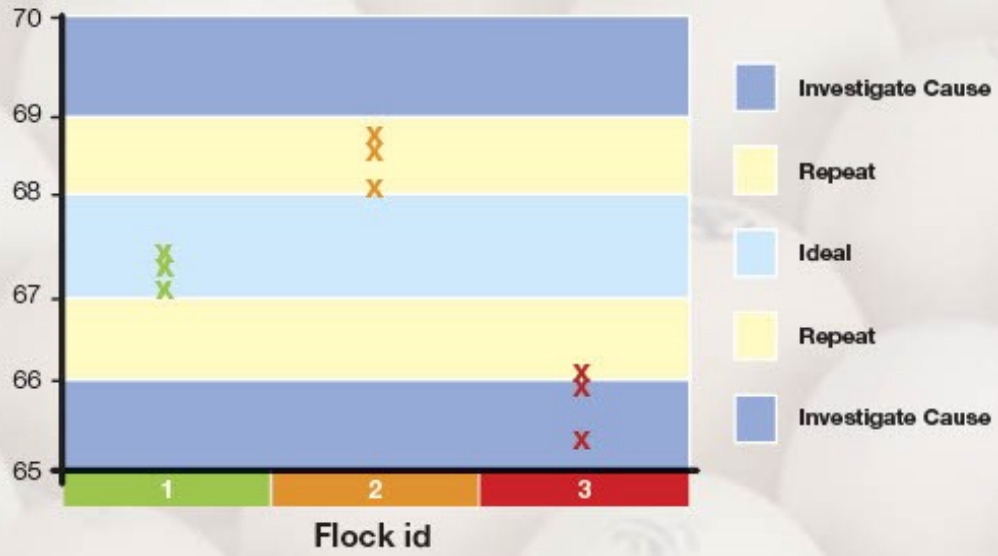
Egg Weights and Chick Weights

Company	ACME Farming	Date Set	26th Oct 2009
Farm	Windyhill Farm	Date Hatched	16th Nov 2009
Age	26 weeks	Date Broken Out	16th Nov 2009
Setter No.	1, 2 and 3	Hatcher No.	1

Tray No.	1	2	3	4	5	6	7	8	9	10
No. of Eggs	132	132	132	132	132	132	132	132	132	
Weight of Empty Tray	1205	1210	1205	1208	1206	1208	1212	1201	1205	
Weight of Full Tray	8201	8364	8175	8191	8242	8336	8089	8263	8307	
Transfer Weight	7382	7499	7324	7451	7510	7637	7113	7183	7206	
No. of Chicks Hatched	120	116	123	122	115	118	109	104	106	
Total Chick Weight	4268	4238	4384	4395	4193	4371	3748	3667	3724	
Culls and Deads	1	0	1	1	2	1	2	3	2	
Unhatched Eggs	11	16	8	9	15	13	21	25	24	
Egg Weight Loss (%)	11.7	12.1	12.2	10.6	10.4	9.8	14.2	15.3	15.5	
Mean Egg Weight (g)	53.0	54.2	52.8	52.9	53.3	54.0	52.1	53.5	53.8	
Mean Chick Weight (g)	35.6	36.5	35.6	36.0	36.5	37.0	34.4	35.3	35.1	
Chick Yield (%)	67.1	67.4	67.5	68.1	68.4	68.6	66.0	65.9	65.3	

INTERPRETING RESULTS

The graph below shows the chick yield results from 3 different flocks:



Flock 1 has chick yields within the acceptable range.

No action required.

Flock 2 has slightly high chick yield but close to the acceptable range.

Action: Check the chick yield from this flock again and if it is still high, use table below to investigate the cause of the high chick yield.

Note: *This high chick yield would be acceptable if the chicks do not arrive on the farm on the same day as hatch.*

Flock 3 has low chick yield and these chicks will be at risk of dehydration.

Action: Use the table below to determine the cause of the low chick yield.

FACTORS AFFECTING CHICK YIELD

Low Chick Yield	High Chick Yield
1. Incubating the eggs too long. 2. High incubation temperature. 3. Low incubator humidity.	1. Incubation time too short. This may be as a consequence of long egg storage, or eggs from very young or old breeders. 2. Low incubation temperature. 3. High incubator humidity.

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