

# TPA NEWSLETTER

from the Tennessee Poultry Association



Winter 2018



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or ALL GONE**

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## LOW PATH BIRD FLU IN MINNESOTA TURKEYS

**December 8, 2018 update.** MN has confirmed four commercial turkey flocks to be affected by H5N2 low pathogenic avian influenza (LPAI) in Oct. and Nov. according to reports from the [World Organization for Animal Health](#) (OIE). Three of the farms are in Stearns County, while the other one is in Kandiyohi County (which is also where the HPAI break in 2015 began). Between the four flocks a total of 178,000 turkeys were affected and have been depopulated. □

## LOW PATH BIRD FLU UPDATE FOR CALIFORNIA

**November 21, 2018 update.** Low pathogenic avian influenza (LPAI) has been eliminated in the five turkey flocks that tested positive in Stanislaus County, CA for H7N3 in September and October of 2018. There have not been any other cases found. Surveillance zones associated with this LPAI incident have been released, although routine surveillance continues statewide. It is important to remember that we are still in the midst of the poultry "flu" season, so bird owners should not let their guard down and remain vigilant in their biosecurity efforts. The last low pathogenic avian influenza case was confirmed on October 11, according to the [California Department of Food and Agriculture](#). Stanislaus Co. is in the middle of the state, east of San Francisco and south of Sacramento in the Modesto area. □

## VIRAL NEWCASTLE DISEASE UPDATE FOR CA

**Dec. 5, 2018.** In response to the ongoing virulent Newcastle Disease Virus (vNDV) outbreak in California, their State Veterinarian has ordered that all birds in certain communities of the Los Angeles, San Bernardino and Riverside county areas be depopulated. Since May 17, 2018 there has been over 185 confirmed cases in this southern California region, with even more presumptive positives pending, all occurring in backyard exhibition chickens. Over 108,000 premises have been visited as part of the ongoing surveillance measures. To date, there have been no commercial poultry operations affected. According to USDA/APHIS, a death rate of almost 100% can occur in unvaccinated poultry flocks. □

## TYSON FOODS COMPLETES ACQUISITION OF KEYSTONE FOODS

*Purchase supports Tyson Foods' valued-added & international growth strategies*

**Springdale, Ark. – November 30, 2018 –** Tyson Foods, Inc. (NYSE: TSN) has successfully completed the acquisition of Keystone Foods from Marfrig Global Foods. The purchase of Keystone, a leading supplier of chicken, beef, fish and pork to the growing global foodservice industry, aligns with Tyson Foods' domestic and international growth strategy. *(continued on next page)*



## Governor-Elect Bill Lee Announces Dr. Charlie Hatcher to Lead the TN Department of Ag

*Current state veterinarian and 10th generation farmer is latest cabinet pick*



**FRANKLIN, Tenn.** – At the Tennessee Farm Bureau Annual Convention, Tennessee Governor-elect Bill Lee announced that Dr. Charlie Hatcher will join his cabinet to serve as Commissioner of the Tennessee Department of Agriculture.

“Charlie brings tremendous perspective about our state’s rural resources and agricultural way of life,” said Lee. “What happens in rural Tennessee matters to all Tennesseans and Charlie has the experience to carry out the

administration’s key priorities in agriculture and rural economic development.”

Since 2009, Dr. Hatcher has served as the State Veterinarian for the Tennessee Department of Agriculture where he protects the health and welfare of animals within the state, as well as promoting the marketability of animals and animal products.

Dr. Hatcher serves as the general managing partner of Hatcher Family Dairy which was established in 1831. In 2007, the Hatcher family began bottling their own milk and selling to customers in Middle Tennessee as Hatcher Dairy. It has become a successful agritourism venture in Williamson County. He also serves as general managing partner for Williamson County-based Rock-N-Roll Farms and Battle Mountain Farm. Dr. Hatcher is the practice owner of Rock-N-Country Veterinary Services in College Grove.

“I am honored that Governor-elect Lee has charged me with serving our state as the head of the Department of Agriculture,” said Dr. Hatcher. “Being a 10th generation farmer, I know that agriculture impacts all Tennesseans, and I will ensure that we have the best ag community in any state in the country.”

Dr. Hatcher received his Doctorate of Veterinary Medicine from the University of Tennessee in Knoxville and a B.S. in Animal Science from Middle Tennessee State University. He is a 10th generation farmer and a fifth generation Tennessee farmer who resides in College Grove with his wife of 40 years, Sharon. His son and daughter also live on their family farm with their respective families and also have careers in agriculture. □

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Bart Smith - Sunbelt Rentals  
Richard Stewart - River Valley Ingredients  
Don Stone - Marel Inc.  
David Tallent - Grower, Spring City, TN

## Tyson Foods Completes Acquisition of Keystone Foods *(continued from page 1)*

“Our biggest growth opportunities are in value-added foods and international markets. Our acquisition of Keystone helps us achieve both,” said Noel White, president and CEO of Tyson Foods. “The addition of Keystone’s team, industry expertise and international operations strengthens our capabilities. I’m pleased to welcome our newest team members to the Tyson Foods family.”

This acquisition involves eight plants and three innovation centers in China, South Korea, Malaysia, Thailand and Australia that will help meet growing international demand. Tyson Foods also is gaining an innovation center and six processing plants in the U.S. with locations in Alabama, Georgia, Kentucky, North Carolina, Pennsylvania and Wisconsin. Keystone supplies chicken, beef, fish and pork to some of the world’s leading quick-service restaurant chains, as well as retail and convenience store channels. Its value-added product portfolio includes such items as chicken nuggets, wings and tenders; beef patties; and breaded fish fillets.

“We’ll work to make the integration of Keystone as seamless as possible while maintaining high levels of service to our customers,” White said. “An Integration Management Office has been formed with leaders from both companies who will lead us through the process. I look forward to all we can accomplish together as one Tyson Foods.” □



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## Dr. Hongwei Xin to Serve as the New Dean for Ag Research at UT

It is with great pleasure that I share with you that Hongwei Xin, currently assistant dean for research in the College of Agriculture and Life Sciences at Iowa State University, has accepted an appointment as our new dean for AgResearch at the University of Tennessee Institute of Agriculture. He will begin in his new role on May 16, 2019.



Dr. Hongwei Xin

With his deep understanding of the land-grant mission and collaborative style, Hongwei comes to UTIA with an international reputation for research and academic leadership. His work has had major impacts on US and global animal agriculture and has produced significant contributions to scientific literature and engineering practices related to animal production systems. He is the principal or co-principal investigator of more than \$23.7 million in competitive grants and contracts for research, Extension, and education programs.

***Hongwei is known for his collaborative work in facilitating linkages between academics, research, and economic development; supporting international academic partnerships; and raising significant private dollars to fund a state-of-the-art poultry teaching and research farm. His wealth of experience will be invaluable to UTIA as we continue to explore ways to enhance our public-private partnerships.***

In addition to serving as assistant dean at Iowa State, Hongwei is the director of the Egg Industry Center (EIC), interim director of the Iowa Nutrient Research Center, and a Charles F. Curtiss Distinguished Professor in the Departments of Agricultural and Biosystems Engineering (ABE) and Animal Science.

Hongwei serves on numerous scientific advisory boards and committees for academia; industry organizations; and government agencies at state, national, and international levels. He has also been instrumental and actively engaged in global capacity building and collaborations toward sustainable animal production. Before joining Iowa State in 1993, ***he spent more than three years as a postdoctoral research associate at the University of Arkansas conducting broiler housing research.***

Hongwei shared this with me about his appointment, "I am very honored and humbled to be asked to join the UTIA family as dean of AgResearch, and I look forward to working with Chancellor Cross, UTIA administrative colleagues, faculty, staff, students, and external partners to continue and grow UTIA's fifty-year excellence in serving the great state of Tennessee and beyond through providing Real. Life. Solutions."

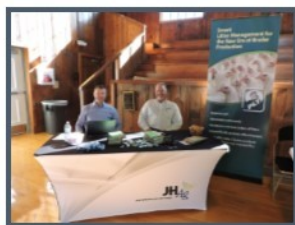
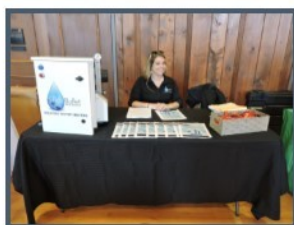
I am also pleased to announce that Hongwei's wife, Toni Wang, will be joining our Department of Food Science as a professor. Her research interests include the processing and value-added utilization of soybeans, corn, egg, and other agricultural products and byproducts, primarily for their lipid components. She is currently an endowed faculty fellow at Iowa State and will be a wonderful addition to the department and to our Institute.

At this time, I want to thank Fred Tompkins who has served so admirably on an interim basis in the dean's role since April 9, 2018. As we focus on this transition, Fred will continue serving in this role until Hongwei arrives in May. His wise counsel and leadership have been invaluable to me, and I look forward to his continued advisement.

I also want to thank Caula Beyl, dean of the Herbert College of Agriculture, and Robert Burns, dean of UT Extension, who co-chaired the search committee, along with all the committee members, for producing three outstanding candidates for consideration. I received more than 120 survey responses from faculty, staff, and stakeholders who were actively engaged in this process. I am most grateful for the input and congratulate all on a job well done.

Please join me in welcoming Hongwei and Toni to the UTIA family.

Tim Cross  
Chancellor



## Avian flu has potential to adapt

Nov. 21, 2018 in [PoultryWorld.Net](#) by [Tony McDougal](#)

**Researchers have found that bird flu viruses are able to escape immune responses and adapt to infect humans**

Scientists found that mutant H9N2 bird flu viruses isolated from Pakistan are able to escape vaccine immunity while increasing their potential to infect humans.

Led by scientists from the UK's Pirbright Institute, a team carrying out surveillance research discovered that small changes to a surface protein, called haemagglutinin, of the H9N2 Influenza A virus, enables the mutated virus to enter human cells.

Professor Munir Iqbal, head of the [avian influenza](#) group at Pirbright, said: "H9N2 viruses cause moderate illness and death rates in domestic poultry and do not cause severe disease in humans, but the capability of an H9N2 [avian influenza](#) virus to bind to human-like receptors raises concern for potential human transmission."

Influenza viruses that infect humans and chickens typically use different host cell receptors in the early attachment stage. This study demonstrated that mutant can bind to human-type cell receptors although its preference for avian-like receptors remains.

Haemagglutinin surface protein is used by influenza viruses to enter host cells to begin replication, which makes it a prime target for the immune system. The team also found that the mutation, which is a single amino acid substitution, could result in lowered protection for chickens that have been vaccinated against H9N2 viruses. The mutation enhances the H9N2 haemagglutinin affinity for host cell receptors, which out-competes antibody binding, preventing the virus from being neutralized.

However, mutations come at a cost to the virus. The team found that mutant H9N2 virus did not replicate in cell cultures as efficiently as viruses without the amino acid substitution. This shows the fine balance influenza viruses must maintain when mutations occur that enable them to escape the immune system and infect different hosts; many mutations will result in a virus which is unable to effectively replicate. However, occasionally these changes leave the virus unhindered, allowing it to spread rapidly.

The group is now working on understanding how the mutant H9N2 avian influenza A virus could generate a mutation that hits the right balance while retaining its ability to bind to human-like receptors. This will allow better screening of circulating avian influenza viruses for traits that allow human infection, providing early warnings to their pandemic potential. □

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## Launched: Method to identify gender in hatching eggs

Nov. 9, 2018 by Tony McDougal in [PoultryWorld.net](#)

Millions of day old male chicks will no longer need to be gassed following the launch of a market-ready method for identifying the gender in hatching eggs.

Hailing the launch of the initiative as a "great day for animal welfare in Germany", German Agriculture Minister Julia Klockner said the country had set the pace for the rest of Europe to follow.

"Now it is possible to identify the gender of the chicks in the hatching egg through a needle-tip tiny hole, male hatching eggs no longer need to be incubated and killed immediately after hatching," she said.

The initiative comes from SELEGGT, a joint venture between HatchTech, German supermarket chain REWE and the University of Leipzig, which sees the eggs from the laying hens checked on the genus during the incubation phase.

### The process

In the process, a laser is used to burn a hole of no more than 0.3 millimeters into the hatching eggshell. Afterwards, a small amount of fluid is extracted through a non-invasive procedure. The interior of the egg is left untouched and remains safe.

Through a change in color, a marker will indicate whether the sex-specific hormone estrone sulphate can be detected in the hatching egg. If detected, a female chick is developing in the hatching egg. Consequently, only female chicks hatch on the 21st day of incubation. No estrone sulphate indicates a male hatching egg, which is separated and processed into high-quality animal feed.

SELEGGT is now developing a business model to make the technology available to the industry as a cost-neutral service. The patented process will be available to the first hatcheries in 2020.

Jan Kunath, REWE Group deputy chief executive, said customers would also benefit: "Throughout next year, our customers will be able to buy the so-called free-range respeggt-eggs gradually throughout Germany." □



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## ALLIED MEMBER NEWS

**Darling Ingredients Inc.** announced that it has acquired substantially all the assets of Triple - T Foods Arkansas, Inc., including a wet pet food ingredient operation in Springdale, Ark., along with a cold storage operation in Rogers, Ark. The acquisition further expands Darling's premium protein business for the growing pet food industry. [Click here for full article](#)

**Darling Ingredients Inc.** announced on Nov. 7 that it acquired the stock of PPH Conto Ltd. a food-grade animal fat processing facility in Kujawski, Poland. [Click here for full article](#)

**BioSafe Systems** is pleased to announce the hire of **Heidi Hudson** as their new MPS Technical Sales Representative. Working from her home office in Texas, Heidi will be responsible for generating Animal Health distribution and sales opportunities in the South-Central region of the U.S.



Heidi Hudson

**BioSafe Systems** announces new technology to monitor PAA concentrations in water used for poultry processing chiller applications. The *BioChamber™* system is designed for real-time monitoring of chiller process waters where high pH levels and high levels of fats, oils, and greases would typically damage standard probe technology.

**BioSafe Systems** is introducing a new type of peroxyacetic acid production to the poultry market. Trademarked as *OxyFusion™* this on-demand system can produce peroxyacetic acid with a neutral, caustic, or acidic pH values to help provide innovative solutions for poultry interventions. Unlike traditional PAA use, this proprietary system eliminates off-gas odors and corrosivity concerns.

**Marel's** SensorX detection system automatically identifies bone particles and other foreign objects in chicken meat, using highly reliable X-ray technology. New, advanced software now ensures the ultimate balance between most accurate bone detection and lowest false positive rates. [Read more](#)

**Marel Inc.** announced that **Jan Erik Kuhlmann** will join the company as the new president of North America region. Kuhlmann took over the position on Oct. 22. [Click here for full article](#)

**Merck Animal Health** has launched INNOVAX-ND-IBD, the first live vaccine in the United States, made with biotechnology that protects against three highly infectious diseases in poultry – Newcastle disease (ND), infectious bursal disease (IBD) and Marek's disease (MD).

**Meyn America LLC** has announced that **Jay Russell** will assume the position of vice president of sales USA. Jay has a total background of over 17 years in sales and business development in the food processing equipment industry. Jay joined Meyn America four years ago and has played a key role in improving their customer approach and focus on added value propositions. [Click here for full article](#)

**Suncoast Pine Shavings** has announced **Chynette Todd** as Sales Manager...Animal Welfare / Biosecurity / Regulatory Specialist. Chynette is the owner of CT Consulting and previously worked with Keystone Foods. Shaun Brown has also come on board as Poultry Sales Manager. Shaun has previous experience with Pilgrims and Aviagen. □

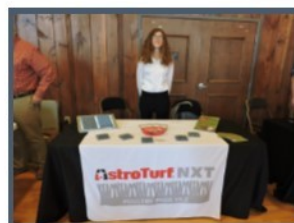
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## NEWS FROM AROUND THE COMPLEXES

**Tyson Foods Awards \$500,000 to Non-Profit Partners in West Tennessee** - Education, hunger relief, housing and other community needs are the focus of \$500,000 in community grants from Tyson Foods to six non-profit organizations in West Tennessee. The company announced that the grants are focused in the City of Humboldt and Gibson County, where earlier this year the company broke ground on a new chicken processing facility. A group of Gibson County leaders collaborated with Tyson Foods representatives to provide guidance and feedback on where the grants would provide the most value in their community. [Click here for full article](#)

**Mark Kaminsky**, Chief Operating Officer at **Koch Foods** (Park Ridge, Illinois), was installed as 2018-2019 Chairman of the [National Chicken Council](#) (NCC) during NCC's 64th Annual Conference held October 31 in Washington, D.C.

**Cobb-Vantress, Inc.** announces **Jay Daniels** as the Sr. Transportation Coordinator for KY and TN. Jay has spent the last 26 years with Hubbard Breeders, most recently as their Director of Operations. Jay has also served on the TPA Board of Directors since 2010, serving as President from 2017-2018 and was TPA's Workhorse of the Year in 2017. □





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<sup>1</sup> Data on file.

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AV16-003A / HPC(02/17)

**PREVENTION WORKS**

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# McDonald's shareholder pushing GAP, RSPCA broilers

SEPTEMBER 27, 2018 BY [ROY GRABER](#) in [WATTAGNET.COM](#)

*New York State Common Retirement Fund trustee tells McDonald's leaders that its broiler welfare policy is not good enough*

A trustee for the New York State Common Retirement Fund, which is a significant McDonald's shareholder, says the fast food chain's initiative to implement higher broiler standards is not good enough.

Specifically, the trustee believes that McDonald's needs to adopt a policy that includes the sourcing of chicken breeds and production standards that are approved by either the Global Animal Partnership (GAP) or the Royal Society for the Prevention of Cruelty to Animals (RSPCA).

## McDonald's existing policy

In October 2017, McDonald's unveiled a new broiler welfare policy to be implemented by 2024 in the U.S., Australia, Canada, France, Germany, Italy, Ireland, the Netherlands, Poland, Russia, South Korea, Spain, Switzerland, and the U.K.

The criteria for the broiler welfare policy are:

1. Sourcing chickens for the McDonald's system that are raised with improved welfare outcomes. The company plans to set targets, measure performance and report on key farm-level welfare outcomes across its largest markets. (RSPCA and GAP are not mentioned.)
2. Partnering with technology companies, producers and suppliers to develop on-farm monitoring systems to automate the gathering of key animal health and welfare indicators, including behavioral measures. Once established, these technologies will highlight potential areas for improvement in real time and will be among the first of their kind available at a commercial scale.
3. Requiring chickens to be raised in housing environments that promote natural behaviors such as pecking, perching and dust-bathing. These behaviors are encouraged through enrichments, such as the provision of perches and pecking objects, access to floor litter 100 percent of the time, and providing a minimum of 20 lux light intensity during photoperiods, with a minimum of 6 hours of darkness (4 hours to be continuous) during a 24 hour time period, reflecting scientific evidence from poultry experts.
4. Conducting commercial trials across select markets in partnership with our largest global chicken suppliers to study the effect that various production parameters have on key welfare outcomes within large-scale, commercial conditions. These trials will measure the effects of inputs such as lighting, stocking density (space allowance) and genetics. This will enable McDonald's to identify best practices that support improved farm welfare outcomes in specific climates across the globe.
5. In the U.S. and Canada, transitioning to sourcing chickens that have been stunned by the use of controlled atmosphere stunning (CAS), a method that is approved by the U.S. Department of Agriculture (USDA) and the Canadian Food Inspection Agency (CFIA). CAS is currently practiced by many approved suppliers for McDonald's restaurants in Europe and Australia.
6. Establishing third party audits to ensure supplier's farms are in compliance with McDonald's new and more comprehensive chicken welfare standards.
7. Completing an assessment by the end of 2018 to measure the feasibility of extending these commitments to the remaining global markets where McDonald's operates.
8. Establishing a global, multi-stakeholder Advisory Council focused on chicken sustainability, with participation from academics and scientists, suppliers and industry experts, animal welfare and environmental advocates to support our continued journey on chicken sustainability, inclusive of health and welfare.

## Letter from shareholder to McDonald's leaders

In a letter on typed on official State of New York letterhead, New York State Comptroller Thomas P. DiNapoli wrote to McDonald's Chairman Enrique Hernandez Jr. and McDonald's President and CEO Stephen J. Easterbrook. DiNapoli identified himself as a trustee of the retirement fund, which holds and invests asset of the state retirement system. The fund, at the time of the writing, held more than 2 million McDonald's shares, valued at more than \$340 million.

While DiNapoli wrote that he thought it was "commendable" that McDonald's updated its broiler welfare policy in 2017, he asserted that "the policy does not align with widely accepted best practices supported by science and research." Specifically, he said the policy should include GAP or RSPCA standards.

Further, he said the policy "lagged behind" those of the chain's competitors such as Burger King, Subway, Jack in the Box and Sonic, all of which have policies that embrace GAP or RSPCA.

According to DiNapoli, a policy that includes a supply chain that adheres to GAP and RSPCA standards makes "business sense."

"High animal welfare standards can generate a number of business benefits, including sustaining or enhancing profitability and sales, as customers have become increasingly concerned about animal welfare and food safety. ... Nearly 80 percent of consumers are concerned about how chickens are bred and housed. Without adopting or aligning its chicken welfare policies to widely accepted best practices, McDonald's risks lagging behind its competitors and misaligning its practices with consumer demand."

## Pressure from animal rights groups

DiNapoli is not the first person to try to pressure McDonald's into a policy that includes GAP or RSPCA.

*(continued on next page)*

## McDonald's shareholder pushing GAP, RSPCA broilers *(continued from previous page)*

A coalition of six animal rights groups – [an unnamed group] implemented a campaign, which includes an online video on the website, [TruthAboutMcDonaldsChicken.com](http://TruthAboutMcDonaldsChicken.com), which criticizes the company's broiler welfare policy.

[The] executive director of [one group] and chairperson of GAP, in an earlier press release stated: "It is shortsighted for McDonald's to not meet customer expectations for improving the lives of chickens, when their competitors are stepping up. American's care deeply about how farmed animals are treated and that trend is only increasing. Ignoring the writing on the wall — that Americans believe chickens deserve better — is a sure way for your business to get left behind."

In June, [one activist group] also implemented a campaign that criticizes the McDonald's welfare policy. □

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## McDonald's shareholder has it wrong on broiler welfare

SEPTEMBER 28, 2018 OP-ED BY ROY GRABER IN [WATTAGNET.COM](http://WATTAGNET.COM)

[Shareholder activism](#) has hit McDonald's, as a holder of more than 2 million shares of its stock wants the fast-food chain to make [changes to its policy on broiler welfare](#). The shareholder is the New York State Common Retirement Fund, which handles the state and local retirement system for more than one million members.

How McDonald's responds to this pressure from a trustee of the fund should concern not only those involved in the poultry industry, but also those whose retirement benefits are being managed by the company.

New York State Comptroller Thomas P. DiNapoli, a trustee of the fund that owns more than \$340 million worth of McDonald's stock, recently wrote a [letter to McDonald's President and CEO Stephen J. Easterbrook and Chairman Enrique Hernandez Jr.](#), urging the company to make changes to its broiler welfare policy it announced in 2017.

McDonald's already has a sound [broiler welfare policy](#) that other restaurant chains might be wise to consider looking to as an example. So what is DiNapoli's hang-up with the policy? The company stated it will source chickens "that are raised with improved welfare outcomes."

But two organizations – Global Animal Partnership (GAP) and Royal Society for the Prevention of Cruelty to Animals (RSPCA) – are pushing slower-growing breeds of chickens the organizations claim have improved welfare outcomes.

McDonald's doesn't give any mention to GAP or RSPCA, and DiNapoli said that is the issue at hand. He even goes as far as to say that McDonald's policy "does not align with widely accepted best practices supported by science and rigorous research."

He further stated that since animal welfare is important to consumers, it could hurt the company financially because they won't see McDonald's as going all-in on poultry welfare.

### Argument seems short-sighted

One can argue the accuracy of DiNapoli's claims that GAP and RSPCA standards are widely accepted best practices that are supported by science and research.

Did he look at all of the research presented from both sides of argument, or only those of animal rights activists that are devoting so many resources to promoting the GAP/RSPCA agenda?

That's only one part of the equation. The other is his claim that the policy as stated could hurt the business.

Industry experts have shown that slower-growing broilers promoted by these groups are more expensive to produce, require more space and other resources in order to produce the same amount of chicken meat. If there is an industry-wide switch to such broiler breeds, the supply of U.S. chicken will be greatly reduced, which means the price of chicken will go up.

If a change is made, that leaves McDonald's with two options:

- ◆ Absorb the additional cost of chicken products from slower-growing broilers, or
- ◆ Raise the cost of its chicken menu items and risk losing customers because it is cost-prohibitive to buy an order of GAP Chicken McNuggets or an RSPCA McChicken sandwich.

Neither scenario appears to be good for business for McDonald's.

If my retirement funds were being managed by people that think such a change would be financially beneficial, I would be concerned.

My advice to McDonald's: Don't change a thing. □



## Congress Considers Overriding California Egg Ban

Sept. 22, 2018 article by Will Coggin in [The Industry Update Newsletter](#)

Animal activists have lobbied for laws in California that ban conventionally produced eggs—the vast majority of eggs in the country—from being sold in grocery stores. A similar law passed in Massachusetts banning the sale of conventionally produced eggs and pork will take effect in 2022. The laws were designed to raise costs for farmers and consumers. The Protect Interstate Commerce Act, currently being considering as an amendment to the Farm Bill, would roll back these bans. If you want to contact your representatives in support of free trade in food products, [click here](#). □

## Californians advance Prop 12 animal housing criteria

Animal agriculture supporters warn of higher prices to consumers and farmers with increased housing space requirements.

Nov 07, 2018 by [Jacqui Fatka](#) in [Feedstuffs.com](#)

In another round of establishing animal production standards, the voters of California overwhelmingly passed Proposition 12 by a vote of 61% to 39% at the polls Nov. 6. The proposition will move forward with mandating new minimum space requirements for the confinement of veal calves, breeding pigs and egg-laying hens and requires that eggs, pork and veal sold in California meet this same standard.

The proposal gave many Prop 2 déjà vu -- first passed in 2008 and brought before voters again this fall as [a well known activist group] attempts to dictate production standards. In 2008, the initiative was to “allow these animals to lie down, stand up, fully extend their limbs and turn around freely,” which was judged to be 116 sq. in. of floor space per bird. According to [the activist group], the new initiative “will require housing systems by 2019 that are impractical for cage confinement, and by 2021, it’s an absolute cage-free requirement.”

The new 2018 initiative sets the standard for egg-producing hens initially at 144 sq. in. per bird — 1 sq. ft. — which is the level at which a hen is considered by activists to be cage free -- by Dec. 31, 2019. By 2022, the hens and other animals will have to be cage free and allowed to roam inside barns. □

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## NCC, Poultry Groups Welcome EPA's Clarification on Needless (Air Emissions) Reporting Requirement

On November 9, 2018, in [Environmental](#)

The National Chicken Council, U.S. Poultry & Egg Association, National Turkey Federation and United Egg Producers this week commended the Environmental Protection Agency (EPA) for its proposed changes to the Emergency Planning and Community Right to Know (EPCRA) Act. The rule would clarify that farms would not be required to report air releases from animal manure.

The poultry and egg industry groups remarked, "The removal of this unnecessary burden will ensure that emergency first responder's important effort and time is not wasted on responding to non-emergencies. We look forward to working with local emergency planning commissions and emergency first responders to help them be familiar with how our poultry and egg facilities operate, so if there is a true emergency, their safety and efforts are enhanced."

Congress made it clear in passing the Fair Agricultural Reporting Method Act (the FARM Act) earlier this year, which the poultry and egg industry strongly supported, that it did not intend to cover low-level air releases from the natural degradation of manure as an emergency notification under federal emergency response laws.

The FARM Act, passed on March 23, 2018, exempted farms from the requirement to submit emergency release reports to the Coast Guard's National Response Center for air releases from manure under the Comprehensive Environmental Response, Compensation, and Liability Act. The rule proposed by EPA today is the result of the Agency considering the intent of Congress to produce a common-sense approach to handling this issue under the nation's emergency planning framework. Moreover, in light of ongoing efforts to improve and enhance communication between farmers and local emergency responders at the state and local level, this requirement is not needed. □

## North Carolina Sees More Than \$1 Billion in Agricultural Losses after Florence

The North Carolina Department of Agriculture and Consumer Services stated that after Hurricane Florence, initial estimates for crop damage and livestock losses to the state's agriculture industry are expected to be more than \$1.1 billion. To put this in perspective, the damage from Hurricane Matthew in 2016 was about \$400 million dollars.

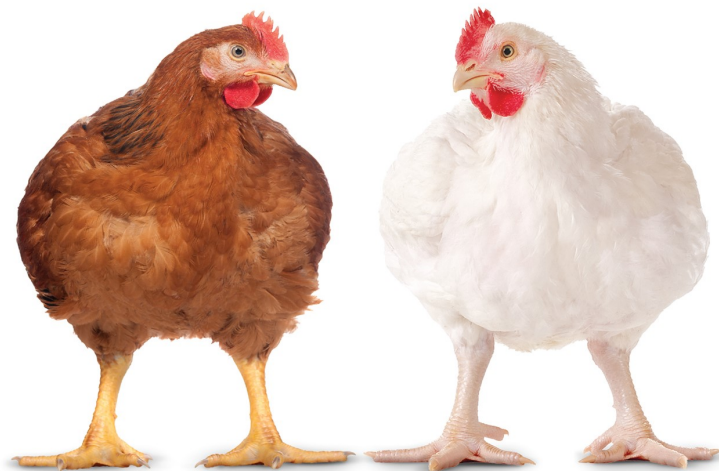
[Click here for full article](#) □

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# Motion Submitted to Federal Court for Nationwide Injunction of WOTUS

Sept. 27, 2018

USPOULTRY along with a broad coalition of business groups, led by the American Farm Bureau Federation, requested that a Georgia federal district court expand its prior order delaying implementation of the 2015 Waters of the U.S. (WOTUS) rule in 11 states. The coalition submitted a motion to the United States District Court for the Southern District of Georgia to extend its previous injunction to block the WOTUS rule in the remaining 22 states that are currently subject to the WOTUS rule.

[Click here for full article](#) □

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## EPA on Track to Issue Final WOTUS Rule by September 2019

On October 19, 2018

The Environmental Protection Agency (EPA) says that it is on track to issue a final rule replacing the Obama administration's 2015 "Waters of the United States" (WOTUS) rule by September 2019.

However, in the latest semiannual regulatory agenda released by the federal government, EPA estimates it will publish a proposed replacement rule this month, which aligns with pledges made recently by EPA Acting Administrator Andrew Wheeler. However, the complex nature of the rulemaking process could make it difficult for EPA to meet the September 2019 target.

Because of court rulings from federal judges in difference states, the 2015 WOTUS rule is now in effect in 22 states, while WOTUS implementation is blocked in 28 other states.

"We're hopeful, but they better get busy," said Don Parrish, senior director for regulatory relations at the American Farm Bureau Federation. Parrish said it is important that the agencies allow plenty of time for public comment and he supports a 90-day comment period on the new WOTUS proposal. □

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## WOTUS Rule Reinstated By Federal Judge

December 4, 2018 by [Greg Henderson](#) in [Drovers.com](#)

*A federal judge in Washington state has reinstated the Waters of the United States (WOTUS) rule.*

The Waters of the United States (WOTUS) rule was reinstated by a Washington state federal judge last week.

According to a report in the Capital Press, Judge John Coughenour of the District for Western Washington ruled the Trump administration's Environmental Protection Agency and Army Corps of Engineers made a "serious procedural error" by reinstating the pre-2015 WOTUS.

Earlier this year the agencies took comment on delaying the Obama administration's definition of WOTUS until February 2020. However, the agencies did not take comments on the substance of the pre-2015 rule, which Coughenour ruled had the practical effect of changing the WOTUS rule without public comment, a violation of the Administrative Procedures Act.

Coughenour said his ruling vacates the pre-2015 WOTUS rule nationwide. A similar ruling was made in August by a South Carolina judge that prohibited the Trump administration from delaying implementing the Obama WOTUS rule. In a footnote, Coughenour distinguished his ruling by saying it expressly vacates the pre-2015 rule. □

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## TSPN Announces TN Farmers Suicide Prevention Task Force

NASHVILLE, Tenn. — The Tennessee Suicide Prevention Network (TSPN) in partnership with the TN Department of Ag wishes to announce the formation of the Farmers Suicide Prevention Task Force (FSPTF). This joint effort of TSPN and the Tennessee Department of Agriculture, which was created and approved by the TSPN Gubernatorial appointed Advisory Council, will work to proactively address the issue of suicide in TN. The task force will meet to create and carry out action items to proactively reach this population.

TSPN's Executive Director, Scott Ridgway, MS, expressed his enthusiasm, stating "with the support of the Task Force members, TSPN will be better prepared to assist Tennessee Farmers in getting the help they need to continue to prevent suicide in our state." Many of the factors that affect agricultural production are largely beyond the control of the producer. Specific stressors for this population include financial concerns, personal or family concerns, work-related injuries, loss of crop or livestock and weather. "Farming isn't just a job – it's a life's work," Agriculture Commissioner Jai Templeton said. "Many Tennessee farmers are facing challenges right now and experiencing different kinds of stress. However, those in the agriculture community look after one another. Our producers deserve access to resources that support them, and we plan to provide just that." To find out more about this population, visit our website at <http://tspn.org/farmers-and-suicide-prevention>. □



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## Good Ventilation Key to Maximum Profit, Cobb Says

Oct. 9, 2018 from USPOULTRY

For many poultry growers, optimizing profit potential starts with a solid understanding of the principles of ventilation and knowing how to execute them for increased profitability. Cobb-Vantress, Inc. technical experts recently shared their practical advice for achieving the genetic potential of every Cobb bird with good ventilation and by maintaining ideal environmental conditions in the chicken house.

[Click here for full article](#) □

## Using Interval Timers to Control Evaporative Cooling Pads

Provided by Dr. Mike Czarick at the Univ. of Georgia

It is fairly common practice to operate evaporative cooling pads off both house temperature and an interval timer. For instance, the evaporative cooling pad pump would be set to turn on once house temperature reaches 82 F, at which time an interval timer would allow the circulation pump to operate a minute or two out of ten. Once the house temperature drops below 81 F, the circulation pump would turn off. The question is whether there is an advantage to operating an evaporative cooling system in this manner as opposed to simply operating the circulation pump solely based on house temperature.

Recently a study was conducted on a commercial broiler farm to compare environmental conditions in side-by-side houses to help answer this question.

The newsletter on our findings can be found at [poultryventilation.com](http://poultryventilation.com) or the link below.

[Using Interval Timers to Control Evaporative Cooling Pads](#) □

## Poultry Breeders Have a Compelling Sustainability Story

Sept. 25, 2018 from USPOULTRY Wire

If people truly understood the science behind modern poultry genetics, there would be little justification for the movement toward slower-growing broiler breeds, a University of California-Davis (UCD) extension specialist said.

[Click here for full article](#) □

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## Propane Updates

Dec. 6, 2018

**SPOT PRICING:** Spot prices at Mont Belvieu, TX on Dec. 4<sup>th</sup> were at \$0.738, *after being the lowest price for the year* at \$0.683 on Nov. 28<sup>th</sup>. The highest prices for 2018 occurred in late Aug. through mid-Oct. where they stayed in the \$1.00 to \$1.10/gal. range for Mt. Belvieu.

Allowing for an average of \$0.41 per gallon for tariffs, handling and delivery to most areas, the average current retail price on Dec. 4, 2018 is roughly **\$1.15/gal.** Larger accounts can often negotiate a lower price agreement by as much as \$0.05/gal., or more. To follow Mont Belvieu, TX spot pricing go to: [https://ycharts.com/indicators/mont\\_belvieu\\_propane\\_spot\\_price](https://ycharts.com/indicators/mont_belvieu_propane_spot_price).

During the NASEO Energy Security Committee call on November 6th various states provided updates on their observations. The Midwest states, generally, have not seen significant increases in propane price and crops seem to be later, but not as wet as predicted. Supplies in PADD 2 (Midwest, including TN) remain above the 5-year levels.

The NASEO-EIA Winter Fuels webinar recording and presentations from Nov. 14<sup>th</sup> are available on NASEO's website at: [www.naseo.org/event?EventID=6606](http://www.naseo.org/event?EventID=6606).

### Highlights from the November 2018 Short-Term Energy Outlook:

Weather remains a large driver for winter fuel heating markets this winter. After mild winters in recent years, the November 18 STEO forecasts a return to more normal winter temperatures for the majority of the country, which would be slightly colder than last winter. Compared to last winter, the November STEO predicts that temperatures in the Northeast will be 1% colder this winter, 1% warmer in the Midwest, 4% colder in the South, and 4% colder in the West. Compared to the 10-year average, NOAA's latest forecast predicts that temperatures in the Northeast will be 1% colder, 1% colder in the Midwest, 1% colder in the South, and 2% warmer in the West.

Like heating oil, colder temperatures and higher crude oil prices have the potential to increase average propane expenditures this winter compared with last year. At 26.8 million barrels as of November 9, propane inventories in the Midwest (PADD 2) were 5% (1.3 million barrels) higher than at the same time last year, while propane inventories in the Northeast (PADDs 1A and 1B) were 9% (0.5 million barrels) higher at 5.8 million barrels. U.S. total propane inventories were 83.8 million barrels, which was 12% (9.1 million barrels) higher than at the same time last year. EIA forecasts that propane prices in the Northeast and Midwest this winter will be about \$0.10/gal higher than last winter. The [next report](#) is expected to be released Dec. 11, 2018. □

## Poultry Slaughter

Nov. 27, 2018

Poultry certified wholesome during October 2018 (ready-to-cook weight) totaled 4.53 billion pounds, up 5 percent from the amount certified in October 2017. The September 2018 revised certified total at 3.90 billion pounds, was down 1 percent from September 2017. The September revision represented an increase of 12 million pounds from last month's preliminary pounds certified.

The preliminary total live weight of all federally inspected poultry during October 2018 was 5.98 billion pounds, up 5 percent from 5.70 billion pounds a year ago. Young chickens inspected totaled 5.16 billion pounds, up 5 percent from October 2017. Mature chickens, at 75.6 million pounds, were up 4 percent from the previous year. Turkey inspections totaled 716 million pounds, up 4 percent from a year ago. Ducks totaled 18.2 million pounds, up 15 percent from last year.

[Click here for full article](#)

<http://usda.mannlib.cornell.edu/usda/current/PoulSlau/PoulSlau-11-26-2018.pdf> □

## Daily National Grain Market Summary

Nov. 27, 2018

Compared to last Wednesday (Nov. 21, 2018), cash bids for wheat and corn was mixed while soybeans and sorghum was lower. Winter storm Bruce wreaked havoc on travel through the Plains on Sunday and Monday. Corn and soybean harvest are at 94 percent complete; with corn being 2 percent behind and soybeans 4 percent behind the previous five-year averages.

Corn was 7 cents lower to 1 1/4 cent higher and soybeans were 13 3/4 cents to 25 3/4 cents lower.

[Click here for full article](#) □

### SALMONELLA STATS

Chicken gets a bad rap, but what do the facts say?



According to USDA, FDA and CDC, 90% of *Salmonella* illness are attributed to sources other than chicken.

#### Top Causes of Salmonella Illnesses

Outbreaks from foodborne illnesses decreased by

**40%**

from 2001-2010.



**66**

percent

Over the past 5 years, *Salmonella* has decreased on whole chickens by 66%

**98.5%**

of USDA tests for *Salmonella* on whole chickens at large plants are negative.

#### Tips to Prevent Illness



<http://www.fda.gov/oc/ohrt/2013/03/20130320-salmonella-report.html>  
<http://www.cdc.gov/food/safety/pdf/fftrac-project-report-508c.pdf>

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## Petition to Permit Waivers of Maximum Line Speeds for Young Chicken Establishments Operating under the New Poultry Inspection System; Criteria for Consideration of Waiver Requests for Young Chicken Establishments to Operate at Line Speeds of up to 175 Birds per Minute

The Food Safety and Inspection Service (FSIS) is responding to public comments on a petition submitted by the National Chicken Council (NCC) on Sept. 1, 2017 and is also providing information on the criteria applicable to line speed waivers for young chicken establishments. The NCC submitted a petition to FSIS requesting that the Agency establish a waiver program to permit young chicken slaughter establishments to operate without line speed limits if they participate in the New Poultry Inspection System (NPIS) and the FSIS Salmonella Initiative Program (SIP) and develop a system for monitoring and responding to loss of process control.

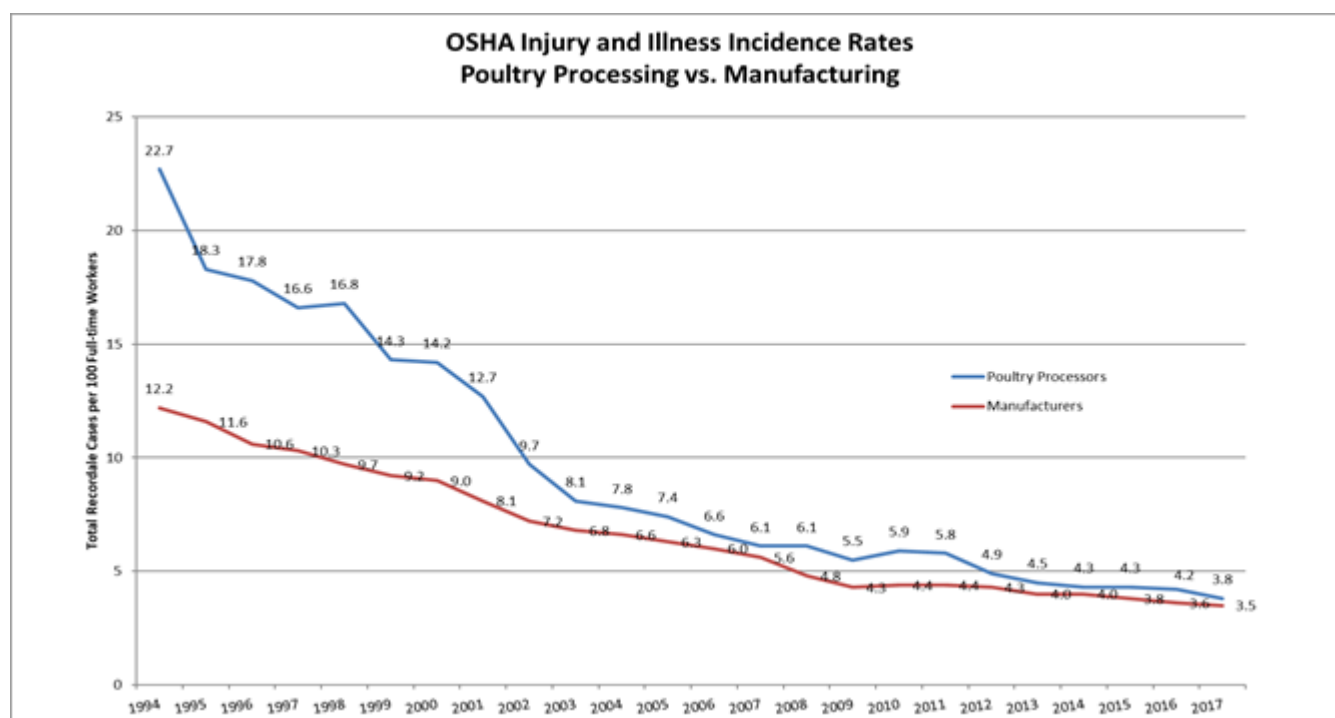
[Click here for full article](#) □

## Poultry Industry Continues to Improve Worker Safety Record

*Injury and illness rates down from year ago and down 83 percent since 1994*

WASHINGTON, D.C. – November 8, 2018 – The incidence of occupational injuries and illnesses within the poultry sector’s slaughter and processing workforce has fallen by 83 percent over the last 20 years and continues to decline according to the [2017 Injury and Illness Report](#) recently released by the Department of Labor’s Bureau of Labor Statistics (BLS).

The total recordable poultry processing illness and injury rate for 2017 was 3.8 cases per 100 full-time workers (per year), down from 4.2 in 2016. The poultry industry’s rate of 3.8 is below the rate of 6.4 for similar agricultural industries in terms of injuries per 100 full time workers and lower than the rate of 4.5 for the entire food manufacturing sector.



Poultry processing’s 2017 rate of 3.8 represents an 83 percent decrease from 1994 (the oldest data available on the BLS website), when the recorded rate was 22.7, demonstrating the immense advancements the industry has made in improving safety for its workforce.

“Employee safety continues to be of utmost importance to our industry. The poultry industry continues to focus its efforts on the prevention of workplace injuries and illnesses, especially musculoskeletal disorders such as carpal tunnel syndrome, by recognizing the benefit of implementing ergonomics and medical intervention principles, while continually effecting new technology and automation in the workplace. Though the past two decades have shown a notable decrease in the numbers and rates of injury and illnesses, the poultry industry is steadfast in pursuing new and inventive ways to safeguard our workforce,” said the Joint Industry Safety and Health Council in a statement regarding the report’s release.

The Joint Industry Safety and Health Council consists of members from the National Chicken Council, U.S. Poultry & Egg Association and National Turkey Federation. Collectively, the three organizations represent companies that produce 95 percent of the nation’s poultry products and directly employ more than 350,000 workers. □



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### REFERENCES

- 1 Perozo, F. et al (2008). Avian Pathology, 37:3, 237-245.
- 2 Data on file.

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## Is Salmonella hiding in poultry joints?

Oct. 1, 2018 info from [WattPoultryUSA-digital.com](http://WattPoultryUSA-digital.com)

Salmonella may be hiding inside the synovial fluid in joints of chickens and turkeys and finding its way onto the final product from there, according to new research from Colorado State University. For more info go to [WattPoultryUSA-digital.com](http://WattPoultryUSA-digital.com) . □

## Vaccine Progress Hailed for Infectious Bronchitis Virus

The University of Edinburgh and the Pirbright Institute have reported progress on a new vaccine strategy that could potentially offer protection to millions of chickens threatened by the infectious bronchitis virus. [Click here for full article](#) in USPOULTRY Wire. □

## Wooden breast syndrome: The latest science

Myopathies, whether wooden breast syndrome, white striation or “spaghetti meat” have been on the rise globally over the past 5-10 years. While totally safe, they are unappealing to consumers, and result in processing losses at the slaughterhouse. Work to quantify the problem in the US has suggested that up to 30% of heavy birds are affected, leading to an estimated \$200 mln loss each year.

“It’s not the final weight of the bird, but how fast they get there, suggested the University of Guelph’s Shai Barbut. White striation is the older of the two conditions, having first been reported in 2010, while wooden breast syndrome is more recent.

### Fibrous

Wooden breast syndrome consists of a multifocal loss of myofibers associated with markedly increased fibrous tissue, making it tougher upon palpation.

The exact cause of both conditions has not been identified, Prof Barbut explained, but diet quality, genetics, growth rates and bird age are just some of the factors that have been considered.

Prof Barbut also said some diagnostic tools were emerging, such as infrared spectroscopy, but were not yet a better option than time-consuming manual checks. Instead, he suggested understanding the myopathies in order to work towards reducing or eliminating them remained the best option. □

## Heat stress may impair immune system in broilers

Nov. 8, 2018 in [Poultry Health Today](#)

Heat stress in broilers induced lesions of lymphoid tissues, indicating immune system impairment, but it's not yet known if heat stress affects the vulnerability or severity of coccidiosis, Bryan Aguanta, a graduate student at the University of Georgia, told *Poultry Health Today*.

Aguanta and colleagues investigated the histological changes in broilers subjected to heat stress and coccidial infection. In their study, 14-day-old birds were randomly assigned to receive heat stress and some were not. Within each group, half of the birds were infected with *Eimeria* and some were not. The heat-stressed birds were exposed to a temperature of 95° F (35° C) from 15 to 28 days of age.

Sampling of birds from each group demonstrated that birds subjected to higher temperatures had more severe lymphoid depletion of the bursa and thymus at 28 days of age, indicating immune system impairment and therefore a handicap in the ability of handle disease, he said.

Aguanta and colleagues next plan to explore the immunological implications of heat stress as it relates to coccidiosis.

Interestingly, he noted, a student colleague has noted decreased coccidial-oocyst shedding in heat-stressed birds, indicating heat might actually induce protection against coccidiosis. It's an interesting theory, though no one would want to intentionally expose broilers to high temperatures since heat has other negative production consequences, Aguanta added. □

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## Research Provides New Tool for Controlling Reovirus

The USPOULTRY Foundation announces the completion of a funded research project at AviServe LLC in Newark, Del., that has revealed a new tool for controlling reovirus. The research was made possible in part by an endowing Foundation gift from Fieldale Farms and is part of the Association's comprehensive research program encompassing all phases of poultry and egg production and processing. [Click here for full article](#) in USPOULTRY Wire. □

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## Scientists Create 'Golden Eggs' That Can Treat Cancer, Hepatitis

Japanese scientists at the Biomedical Research Institute at the National Institute of Advanced Industrial Science and Technology have created hens that can lay "golden eggs" containing a protein used to treat cancer and hepatitis. These scientists used new genome editing technology to create the hens that can lay multi-million pound golden eggs with high quantities of human interferon beta at a low cost. The scientists are now collaborating with Cosmo Bio, a Japanese biotech firm, to explore the potential of commercial production of the protein. □

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## Study shows how unchanged boots disrupt biosecurity

From [PoultryHealthToday.com](#)

Poultry farmers looking for ways to reduce the spread of viruses and bacteria in their facilities need look no further than the boots on their feet, according to a University of Guelph/University of Montreal study presented at the 2018 Western Poultry Health Disease Conference.<sup>1</sup>

Using real pathogens applied to both boots and floors, the researchers in this study measured contamination levels where employees changed their boots on a Quebec poultry farm. The pathogens applied were a generic *E. coli* ampicillin-resistant strain and a T4 bacteriophage that provided a surrogate for viruses. The researchers also assessed contamination based on the number of steps employees took into dirty and clean areas.

Overall, the two most common biosecurity breaches found were putting boots on in either clean or dirty areas instead of in hygienic changing areas located between dirty and clean areas, and not changing boots at all — which caused more pathogenic contamination than changing them in the wrong areas.

If boots aren't changed, the first step into either a clean or a dirty area is always the worst for causing pathogenic contamination, and contamination levels do not significantly diminish with subsequent steps, the researchers found. Even after 10 steps, according to the study, "the underside of the boot is still heavily contaminated."

<sup>1</sup> Huard G, et al. Assessment and mitigations of contamination risks: Critical knowledge to reduce diseases and increase biosecurity compliance. Proceedings of 67th Western Disease Conference. 2018 April:110-116. □

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### DATES TO REMEMBER

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**Feb. 12-14, 2019**

**Atlanta, GA**

<http://www.ippexpo.org/>

#### TPA SERVICE TECH TRAINING

**Feb. 27, 2019**

**Lebanon, TN**

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**April 10, 2019**

**Nashville Gun Club**

**TPA Golf Tournament**

**April 11, 2019**

**The Hermitage Golf Course**

**Nashville, TN**

### **New Lab Technique Reduces Need for Experimental Chickens**

Oct. 9, 2018 from USPOULTRY

Scientists from The Pirbright Institute in the U.K. have created a laboratory procedure that allows the response of chicken immune cells to infectious bursal disease virus (IBDV) to be studied without infecting live chickens. IBDV, also known as Gumboro disease, can result in immunosuppression and death in poultry and causes significant economic losses across the globe, the institute said.

[Click here for full article](#) □

### **USDA/APHIS launches new poultry biosecurity campaign**

NOVEMBER 16, 2018

Agency is asking all poultry owners, workers and hobbyists to protect the health of live poultry

The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) is launching a new outreach campaign focused on preventing the spread of infectious poultry diseases in both commercial and backyard poultry.

Considering the devastating impact of the highly pathogenic avian influenza outbreak in 2014-2015, as well as this year's outbreak of virulent Newcastle disease, APHIS believes the timing is right for everyone in the poultry community to work together to protect the health of the nation's flocks.

The "Defend the Flock" campaign to promote biosecurity combines and updates two previous campaigns that were each targeted at a specific segment of the poultry population.

"While each of the previous campaigns were successful, by combining them and emphasizing shared responsibility, USDA will improve its ability to promote biosecurity and protect avian health across the country," said Dr. Jack Shere, USDA's chief veterinary officer and a poultry veterinarian himself.

Having experienced several poultry health issues over the last couple of years, the poultry community knows how important biosecurity is to protecting the nation's flocks.

"We've seen great strides in biosecurity since 2015, but biosecurity is an every day, every time effort," said Shere. "To sustain good practices takes awareness, training and reminders – which this campaign is poised to do. Let's all work together to defend our nation's flocks."

USDA launched a new web page for the campaign where anyone can find important information about protecting their flocks from disease. The site also has a resource section, including a series of checklists each covering specific biosecurity principles. Producers, growers, workers and enthusiasts alike can use these as regular reminders or cues for maintaining a high level of biosecurity. These resources will be available in both English and Spanish at the launch, with additional languages coming in the next year.

USDA also held a webinar explaining the new campaign and showing off the latest resources on November 28. The webinar was recorded for later playback. □



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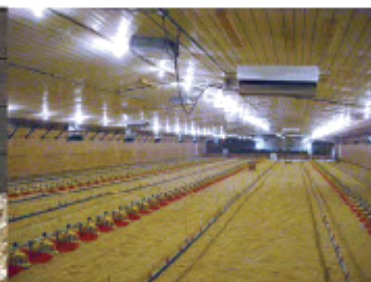
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## The limits of genetic potential

*Laying hens and broilers have enjoyed great leaps in performance over the decades in which large-scale genetic selection has taken place – but where are the limits? It may not be biological, as Poultry World discovers.*

Oct. 24, 2018 in [PoultryWorld.net](https://www.poultryworld.net) by [Jake Davies](#), Editor Poultry World

Future breeding programs for poultry may have to take a more holistic approach that considers bird welfare and environmental concerns, in addition to improved performance, a leading geneticist has warned.

While limits to physiological selection do not appear to be close, the need to balance overall bird health and robust development may become more important, according to Michèle Tixier-Boichard, of the University of Paris Saclay's GABI: Animal Genetics and Integrative Biology unit.

Work to determine the limit of poultry selection, where either traits plateau or the “fitness” of a bird deteriorates beyond an acceptable level have not yet yielded a definitive answer, said Dr Tixier-Boichard. The longest selection experiment for a domestic bird was quail, based on four-week bodyweight, which concluded after 97 generations. Even after 90 weeks some response was observed by researchers. For chicken, an experiment selecting eight-week bodyweight ran for 54 generations with no limit observed on the high body weight line after that time – birds selected for low body weight by contrast began to show no response to selection after 50 weeks.

### Biology

For broilers, some low-fitness traits have emerged over the generations of breeding programs where early growth is considered a priority, said Dr Tixier-Boichard. Slower skeletal development, when compared with the rapid growth of breast muscle, has put pressure on birds' gait quality and leg integrity. This in turn has led to well-documented disorders such as [tibial dyschondroplasia](#), bone deformities and valgus-varus deformities. Cardiovascular efficiency has also been compromised, suggested Dr Tixier-Boichard, leading to the rise in myopathies causing meat-quality defects. The “antagonism” between early growth and reproduction may also need to be addressed, she said, explaining there is a limit to the extent to which broiler breeder diets could be restricted.

### Laying hens

Dr Tixier-Boichard said a number of “unfavorable trends” had also emerged in commercial layers, with osteoporosis, as a consequence of “major pressure put on calcium metabolism and bone re-modelling by egg shell synthesis”.

Injurious feather pecking has also been linked with bird selection, with one hypothesis being that the trait for total bird egg numbers is linked to social dominance – historically hens have been bred in single cages in breeding programs so positive sociability with other birds was not selected for.

One “biologically limited trait” is the cycle of egg production, which is broadly speaking limited to a single egg roughly every 24 hours, linked to birds' circadian rhythms. Experimental breeding programs have squeezed this to a 22 or even 20-hour cycle, but the management of such a system would likely be too complex. Instead, the extension of the production period of hens is considered the way to chase higher bird performance.

### Ethics

Balancing production and welfare therefore has its place, but where does the responsibility lie? Dr Tixier-Boichard argued that the breeding companies were simply managing demand from their consumers, poultry producers. They in turn do not have awareness of the issues, she suggested, and it was NGOs improving consumer awareness that was driving change. She cited the Wakker Dier ‘Chicken of Tomorrow’ movement in the Netherlands as a successful example. The pressure from that charity has resulted in more than 50% market share for broilers growing at less than 50 g/day in the country.

### Testing the limit

Dr Tixier-Boichard concluded a plateau for poultry performance in selection had yet to be found – possibly because of the relatively short time commercial breeding programs had been in place. “Whereas management or technological changes provide short-term solutions to compensate for a biological limit to selection, changes in breeding programs have the advantage of being cumulative.”

She added that genomics, where the whole genome can be observed, could offer opportunities to understand selection pathways better in the future.

Defining selection objectives must take into account the contribution of poultry to the whole agricultural and food system. The challenge is combine production, with welfare and low environmental footprint.” This report is based on a plenary lecture delivered at the 2018 European Poultry Conference held in September. □

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## Genes and their role in feather pecking explored

Sept. 24, 2018 by Tony McDougal in [WorldPoultry.net](http://WorldPoultry.net)

*Studies into mortality due to feather pecking have in the past pointed to genes as playing a substantial role in cannibalism.*

Now, the Animal Breeding and Genomics of Wageningen University and Research and Hendrix Genetics have investigated the genomic regions associated with survival time in laying hens.

### Feather pecking main reason for reduced survival

Survival is an important welfare and economic trait in laying hens and feather pecking behavior is the main reason for reduced survival. Survival is a socially affected trait, because the survival time of a hen depends not only on her own ability to avoid being pecked but also on the pecking behavior of her group mates.

### Genome-wide association study

Scientists know that direct and social genetic effects contribute about 50% of the total heritable variation in laying hens with intact beaks. But they did not know the genes responsible for the direct and social genetic effects.

As a result, they carried out a genome-wide association study using genotype and phenotype data on three crossbred White Leghorn layer lines provided by Hendrix. Hens had intact beaks and were kept with sibs in traditional 5-bird battery cages in Kitchener, Canada.

### Single-nucleotide polymorphisms

Single-nucleotide polymorphisms (SNPs) effects were estimated one by one, for both direct and indirect effects. The results showed several SNP's associated with direct effects on survival time, but none with indirect effects. In one of the crosses, a clear direct SNP-effect was found on chromosome 2, close to the GABA receptor gene (GABBR2).

In another cross, the same region was associated with the social effect, although not significant. The favorable allele had a positive effect on both the survival time of the individual and its group mates.

### The GABA receptor gene

The GABA receptor gene plays an important role in the regulation of neurotransmitters in the brain. Several studies have shown that GABA plays a role in psychological and behavioral stress in many species and is associated with behavioral disorders.

The results have been published in [Genetics Selection Evolution](http://Genetics Selection Evolution). □

## State Ag Officials Give Nod to USDA on Cell-Cultured Meat Regulation

Sept. 12, 2018

Members of the National Association of State Departments of Agriculture (NASDA) voted yesterday in support of the U.S. Department of Agriculture's (USDA) jurisdiction over cell cultured and tissue culture products derived from livestock and poultry. The [action item](#) was co-sponsored by Wisconsin Secretary of Agriculture Sheila Harsdorf and North Carolina Commissioner of Agriculture Steve Troxler.

NASDA Members believe that USDA is the appropriate lead agency and encourages them to work with states and federal agencies to ensure that these products are appropriately regulated and labeled. NASDA CEO Dr. Barbara P. Glenn highlighted the importance of collaboration and coordination amongst federal agencies when developing an appropriate regulatory framework for these products.

"We must provide our food industry with a trusted regulatory environment that prioritizes both food safety and proper nutritional labeling for American consumers. I am confident that USDA can lead that regulatory pathway for these innovative products, while engaging with other state and federal agencies"

NASDA is committed to supporting regulations that foster new technologies, while preserving high regulatory standards. Twenty-seven states have their own meat and/or poultry inspection programs covering nearly 1,900 establishments. The states run the programs cooperatively with USDA's Food Safety Inspection Service (FSIS).

"We are committed to being at the forefront of the discussion about this regulatory framework, as state departments of agriculture play an important role in ensuring food safety around the country. This is just the beginning of a long discussion that industry, stakeholders, and state and federal partners ought to have to ensure a safe and reliable food supply to American consumers. NASDA looks forward to working with stakeholders who support USDA's important role regulating cell based meat and poultry products.

[NASDA](#) represents the elected and appointed commissioners, secretaries, and directors of the departments of agriculture in all fifty states and four U.S. territories. NASDA grows and enhances agriculture by forging partnerships and creating consensus to achieve sound policy outcomes between state departments of agriculture, the federal government, and stakeholders. □

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## NCC Says USDA Must Take Part in Regulation of Cell-Cultured Meat Products

WASHINGTON, D.C. – October 23, 2018 – The National Chicken Council (NCC) today delivered its priorities for cell-cultured meat products as part of the first [joint meeting](#) between the U.S. Department of Agriculture (USDA) and Food & Drug Administration (FDA) on the use of cell culture technology to develop products derived from livestock and poultry.

"As these new technologies are being explored, it is critical that they receive fair and proper regulatory oversight to ensure that consumers maintain the same level of confidence in the safety and labeling of these products as they have since 1906 under the Federal Meat Inspection Act for traditionally-derived red meat products and since 1957 under the Poultry Products Inspection Act for traditionally-derived poultry products," said Ashley Peterson, Ph.D., NCC senior vice president of scientific and regulatory affairs.

To that end, the National Chicken Council believes that the following principles are essential for ensuring that cell-cultured meat products are marketed in a safe and properly labeled manner for consumers:

- The U.S. Department of Agriculture's Food Safety and Inspection Service should regulate the labeling and safety of these products;
- It is not appropriate to refer to these products using terms such as "clean meat," nor should these products be named or described in a way that disparages conventional animal proteins;
- These products should be named or labeled in a manner that clearly discloses the process by which they were made; and
- Claims that these products are superior to conventional animal proteins should be prohibited unless such a claim is substantiated by scientific evidence.

"NCC believes that it is essential to ensure consumer confidence in all meat and poultry products – whether traditionally-derived or cell-cultured," Peterson continued. "To that end, NCC believes that both of these products should receive the same regulatory oversight – a framework that will rely on FSIS's expertise but may also draw on FDA's experience as well."

NCC believes FSIS has the statutory authority, relevant experience, and robust regulatory framework to perform continuous oversight of daily production practices. Additionally, FSIS has a detailed process to oversee the labeling of such products in a manner that clearly discloses the process by which they were made and to otherwise ensure they are labeled in a manner that is not false or misleading.

"FDA also may have additional expertise to fill a role in regulating these products," Peterson noted. "FDA has long ensured that ingredients used in meat and poultry products are safe for use in food through FDA's authority over food additives. Additionally, FDA has experience with similar food production technologies, such as microbial, algal, and fungal cells generated by large-scale culture and used as direct food ingredients. This may lend itself for FDA to address the technical safety of the cell-culturing technology used to create such products and to determine whether the results of this technology are or are not approved food additives." □

## Statement from USDA on the regulation of cell-cultured food products

Nov. 16, 2018 [USDA Press Release](#)

Last month, the U.S. Department of Agriculture and the U.S. Food and Drug Administration held a public meeting to discuss the use of livestock and poultry cell lines to develop cell-cultured food products. At this meeting, stakeholders shared valuable perspectives on the regulation needed to both foster these innovative food products and maintain the highest standards of public health. The public comment period will be extended and will remain open through December 26, 2018.

After several thoughtful discussions between our two Agencies that incorporated this stakeholder feedback, we have concluded that both the USDA and the FDA should jointly oversee the production of cell-cultured food products derived from livestock and poultry. Drawing on the expertise of both USDA and FDA, the Agencies are today announcing agreement on a joint regulatory framework wherein FDA oversees cell collection, cell banks, and cell growth and differentiation. A transition from FDA to USDA oversight will occur during the cell harvest stage. USDA will then oversee the production and labeling of food products derived from the cells of livestock and poultry. And, the Agencies are actively refining the technical details of the framework, including robust collaboration and information sharing between the agencies to allow each to carry out our respective roles.

This regulatory framework will leverage both the FDA's experience regulating cell-culture technology and living biosystems and the USDA's expertise in regulating livestock and poultry products for human consumption. USDA and FDA are confident that this regulatory framework can be successfully implemented and assure the safety of these products. Because our agencies have the statutory authority necessary to appropriately regulate cell-cultured food products derived from livestock and poultry the Administration does not believe that legislation on this topic is necessary. □

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## Plant-Based Foods Stealing Meat Market Share

Sept. 22, 2018 article by Breanne Kincaid in [The Industry Update Newsletter](#)

New [market data](#) commissioned by the Good Food Institute (GFI) shows growing consumer interest in meat substitutes. Total retail sales in the sector exceed \$3.7 billion, a 17 percent increase in year-over-year sales compared to the same point last summer. Meat mimics were no exception. "The plant-based meat category today is looking suspiciously like the plant-based milk category about ten years ago," reports GFI's head of Marketing. Notable: GFI is run by former [ ] executive Bruce Friedrich, and has been in favor of meat taxes and other ways to reduce meat consumption. □

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## Protein's Disruptors Threaten Traditional Red Meat, Poultry Industries

Aug. 30, 2018 by Greg Henderson in [Drovers Daily](#)

World demand for meat alternatives is expected to hit \$5.8 billion by 2026, and such big money has attracted big players such as ADM, Cargill and Tyson Foods.

For more info click [here](#). □

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## Consumers don't get that meat is protein

Oct. 3, 2018 by [Lisa M. Keefe](#) in [MeatingPlace.com](#)

More than half (55 percent) of consumers say high protein is an important attribute to consider when buying food for their families, according to Nielsen research, but their knowledge of protein content in common food items doesn't match up with reality.

Drawing on a half-dozen of its longitudinal research studies, Nielsen calculated that 6 percent of households include someone who lives on a high-protein diet, totaling more than 5.4 million people. But "the blockbuster protein sources" — beef, chicken and pork — "didn't score well in the minds of consumers," the research firm said in a new report.

In fact, between 45 percent and 64 percent of consumers didn't consider beef, chicken or pork to be "high in protein" in a 2018 Nielsen survey, a wider range than when Nielsen conducted the same survey in 2015.

A little more than half (55 percent) were able to correctly identify the amount of protein in beef, compared with 42 percent who could do that same for chicken and only 36 percent for pork.

Data shows that consumers are still choosing traditional sources of protein such as meat, eggs and dairy as their primary source, and growth in those categories is up 1.1 percent over the period. Still, alternate sources of protein is a fast-growing sector, with sales of other "good" or "excellent" sources of protein rising 1.3 percent. Meanwhile, 78 percent of respondents said they believed peanut butter is higher in protein than it actually is, and most did not rank shrimp or cottage cheese as high-protein foods although the protein count for these items is quite high.

Noting that consumers make 60 percent of their purchase decisions at the shelf, Nielsen research pointed out that the results indicate an opportunity to market protein content with on-pack notes and in-store signs, "even for products where it seems obvious." □

## Don't be distracted by fake meat labeling

Oct. 2, 2018 GUEST BLOG: MEAT MESSAGING BY RICK BERMAN in *MeatingPlace.com*

*Rick Berman is president of the Washington, DC-based public affairs firm Berman and Company, which specializes in research, communications, and creative advertising.*

Much of the talk about lab-grown and plant-based “meats” has focused on labeling and whether the USDA or FDA will have primary jurisdiction over the products. This strategy is short-sighted.

At the Good Food Conference, the first major alternative meat conference that was held earlier this month, proponents revealed the progress they have made in quietly and quickly making inroads with consumers.

Consumer data they released indicates that plant-based foods now represent a \$3.7 billion market, with fake meat sales up 23 percent in the past year alone. Admittedly, while this jump is on a small baseline, the market gains are notable considering animal meat sales grew just 2 percent during the same period.

“The plant-based foods industry has gone from being a relative niche market to fully mainstream,” notes Michele Simon, Executive Director of the Plant Based Foods Association. “Plant-based meat and dairy alternatives are not just for vegetarians or vegans anymore.”

One year of unprecedented growth may not make an industry “mainstream,” but the fake meat sector is certainly gaining traction with average consumers, who are not vegetarian or vegan. With the introduction of burgers that “bleed” vegetable juice and laboratory concoctions engineered to bring out the “meaty” flavor locked in the genes of soy root, Simon’s enthusiasm isn’t far flung.

Traditional animal agriculture still represents a \$198 billion industry. Shifting away from this norm is going to require a lot more than the support of Millennials and Gen Z. Fake meat manufacturers know this. In fact, stakeholders spent much of their time at the recent conference postulating big picture best ways for fake meat companies to break through cultural barriers and the die-hard habits of meat-loving consumers.

In contrast, the meat industry strategy has been focused on the smaller picture: A belief that consumers will be confused by labels on fake meat products.

But there’s nothing confusing about it. Consumers aren’t filling their carts with “Beefless Crumbles” or “100% Plant Protein Beyond Chicken Tenders” under a mistaken assumption that the products actually contain meat. They’re doing it for precisely the opposite reason. Consumers want plant-based products for their perceived health benefits. And unless the government is going to require a skull and crossbones label, the relevant industry threat comes from an uninformed consumer.

A panel contributor at the Good Food Conference put her evaluation succinctly: Supermarket placement is far more important than labeling. When meat alternative products are on the shelf directly competing for space and dollars, their “better for you, better for the world” messaging will win big with consumers. As we’ve seen over the years, activists have a common message that meat is bad for health and bad for the planet. Now they have a consumer product that “solves” this problem.

And that’s where animal agriculture should be focusing its efforts: consumer attitudes and behaviors.

Whatever a label says, the success or failure of “fake meat” will be pre-determined if consumers are only seeing and hearing one side of the story.

Consider some counter-messages. Consumers want real and natural foods, and a steak from a cow is about as natural as you can get. Meanwhile, plant-based “meat” doesn’t grow on trees.

Flip over a package of Beyond Burgers or MorningStar Chick’n Nuggets and you’ll be met with ingredient lists so complex, it almost takes a Ph.D. in chemistry to understand. Both use methylcellulose, a thickening agent and emulsifier commonly employed as a laxative. Protein isolates, the top ingredient by weight in most fake meat products, are often processed through hexane extrusion. Under this method, protein is separated from oil by bathing beans in hexane, a byproduct of refining gasoline. Why are meat industry leaders allowing their biggest competitor to get away with an incorrect claim to a health halo?

Rest assured, the only “label” that fake meat companies are concerned by is the one in consumers’ minds. As explained by Josh Tetrick, CEO of JUST, fake meat won’t become “real” to consumers simply because it’s found a space on the menu. “Real is when it’s the only thing on the menu.”

Unless animal agriculture changes its marketing and consumer education strategy, that’s exactly where we’re going. ▢

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## Tyson uses inclusive strategy with alternative proteins

NOVEMBER 5, 2018 BY [ROY GRABER](#) FROM [WATTAGNET.COM](#)

*Tyson Foods chief sustainability officer discusses with Food Tank president the company's diversification into alternative proteins*

Tyson Foods Chief Sustainability Officer Justin Whitmore acknowledged that his company did stir up a little controversy when it invested in alternative protein companies such as [Beyond Meat](#), Memphis Meats and [Future Meat Technologies](#).

But during a recent podcast when he was interviewed by [Food Tank](#) President and Co-founder Danielle Nierenberg, Whitmore said the company's excitement in animal proteins doesn't temper its excitement in alternative proteins, and vice-versa.

In fact, he said that when it comes to the two competing types of proteins, Tyson is taking "an and, rather than an or" approach when it comes to "the future protein landscape."

And just as Tyson Foods, in a sense, reinvented itself from being a company known for producing chicken, turkey, pork and beef products to one that is simply a protein company, other companies may revise their business models as well.

"I think you are actually going to see some food companies stepping forward in some very new and different ways, and I think people will revisit where they get their food from if that's done correctly," Whitmore told Nierenberg.

### Plant protein demand increasing

Whitmore anticipated that more people will look to bring more vegetables into their diets and more options in how to do so. This includes plant-based protein products. So it makes sense for Tyson Foods and companies like it to pursue that market, he said.

"These sorts of businesses will continue to grow. If you think about a company like Tyson, which will move with consumers, we are positioned to deliver those products in a way that few are. So for us, it makes a lot of sense that it is part of a sustainable future of sustainable alternative proteins," he said.

### Another consumer base for Tyson

Nierenberg, who during the podcast revealed that she has been a vegetarian since she was a teenager, said that through Tyson Foods' investments in plant-based protein and cell-cultured food companies, the company will be reaching consumers it hadn't before.

"I feel a lot of the people who may have been, like, protesting Tyson Foods over the years are now going to be buyers of your product," she said to Whitmore, pointing out that the company is now "reaching out to a consumer base that just was not there for (Tyson) before."

Whitmore agreed, adding that there has been some "conflict."

Some consumers, according to Whitmore, said they want to buy products such as Beyond Meat's Beyond Burger, but they don't want to support Tyson Foods.

Whitmore hopes people with those viewpoints will keep an open mind.

"What's important in this is to have some of these consumers take a second look and think about the last time that they really heard from not just Tyson but other big food players about what it is they are actually doing and making a new set of decisions about it," Whitmore said, adding that when people learn more about Tyson's diversification, they will see that they still have their "interests and spirits in mind."

### About Food Tank

Formed in 2013, Food Tank is a nonprofit organization that aims to build a global community for safe, healthy, nourished eaters. According to the organization's website, its ambitions are to educate, inspire, advocate, and create change, while spotlighting and supporting environmentally, socially, and economically sustainable ways of alleviating hunger, obesity, and poverty. □

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## What Tyson Ventures sees in the future of poultry

NOVEMBER 8, 2018 BY [AUSTIN ALONZO](#) IN [WATTAGNET.COM](#)

### Managing Director Reese Schroeder highlighted six innovation areas as part of the Poultry Tech Summit

There's much to look forward in the [future of the poultry industry](#), according to the managing director of [Tyson Ventures](#).

Reese Schroeder, managing director of Tyson Ventures, said the leadership of the Chicago-based investment wing of Tyson Foods Inc. considers six key areas as ripe for innovation and investment: Alternative proteins; environmental impact; digital platforms; shelf life extension; animal well-being; consumer driven platforms and the area of artificial intelligence, machine learning and automation. He spoke on November 6, 2018, as part of WATT Global Media's inaugural [Poultry Tech Summit](#) in Atlanta.

Schroeder said the division of the largest poultry integrator in the U.S. sees a lot going on in the poultry space. He didn't mention any names specifically, but said some of those six areas include more than 30 start-up companies it already identified. Tyson Ventures isn't the only investor out there, either. He said major players in venture capital are ramping up their interest and involvement in the food sector and will help shape the future of food through both investment and strategic partnerships.

*(continued on next page)*

## What Tyson Ventures sees in the future of poultry *(continued from previous page)*

### A focus on innovation spaces

In those six areas, he highlighted a number of sub-categories to consider.

**Alternative proteins:** This includes both cell-based and plant-based proteins. Tyson Ventures is currently invested in two cell-based companies, Memphis Meats and Future Meat Technologies, and a plant-based company, Beyond Meat. Alternative protein is one of Tyson Ventures' three core investment pillars and has received the most attention so far since the area is rapidly developing.

**Environmental impact:** This includes recycling, wastewater solutions and sustainability in general. Sustainability is second of Tyson Ventures' three core investment pillars.

**Digital platforms:** This includes farm management systems and direct-to-consumer products. Tyson Ventures recently invested in FoodLogiQ, a data platform for food safety compliance and supply chain traceability and transparency. Schroeder said the company is also an investor in Tovola, a direct-to-consumer company using a specialized, smart oven to cook prepackaged meals. The Internet of Food is the final element of Tyson Ventures' investment pillars.

**Shelf life extension:** This includes novel coatings and packaging solutions to extend the life of perishable food products.

**Animal well-being:** This includes the use of novel technologies like drones, sensor networks and sex identification to elevate both animal welfare and animal husbandry as well as the development of new vaccines and solutions to enhance feed.

**Consumer driven platforms:** This area includes innovations that capitalize on consumer demand for food that is local, pasture-raised or organic. This area also includes transparency and traceability.

**Artificial intelligence, machine learning and automation:** This area includes the burgeoning robotic technology which is finding application both on the farm and in processing and packaging as well as inventions applying these disciplines to pathogen detection.

### Tyson Ventures' larger goals

Schroeder said the larger goal of the division is to maximize adding value to the core Tyson businesses, engage with emerging companies and technologies and generate a return on investment. Moreover, it aims to incubate the next generation of billion dollar food companies while minimizing distraction to Tyson's core business. These investments should help grow Tyson's own business, serve as a way to share ideas between the startups and the food giant, reinforce Tyson's credibility with consumers and help the company stay in step with new trends and technologies.

Tyson Ventures invests out of a limited liability, wholly-owned subsidiary company of Tyson Foods. It works with a \$150 million investment fund and aims to make minority investments taking no more than a 20 percent ownership stake. The fund was launched in December 2016 and currently counts five companies in its investment portfolio. ▣

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## CoBank: Retailers may follow Costco's lead with poultry

SEPTEMBER 24, 2018 IN WATTAGNET.COM

*Costco's entry into poultry production signals future changes across the meat sector, a CoBank study states*

As [Costco](#) is set to be the first U.S. retailer to integrate its meat supply to the farm level, a new report from CoBank's Knowledge Exchange Division predicts that other food retailers and foodservice companies may be prompted to reevaluate their own supply chain integration opportunities.

The full report, "[Redefining Farm-to-Fork: Costco Sets New Protein Precedent](#)" is available online.

In September 2019, a new poultry complex in eastern Nebraska is expected to open. That complex will be operated by Lincoln Premium Poultry, a new-company in which Costco is a part owner.

Costco expects in-house production through the new complex to generate a savings of 10 to 35 cents per bird. According to the CoBank report, the move comes as Costco's rotisserie chickens have become a major traffic-driver for in-store customers, while available supplies of whole birds at targeted weights have declined. Since 2010, Costco's rotisserie chicken sales have grown by more than 8 percent annually — three times the growth rate of total U.S. poultry consumption — and have maintained a \$4.99 per chicken price point.

Costco's move marks the first time a U.S. retailer has integrated its meat supply to the farm level and taken on the risks associated with animal husbandry, including feeding, animal welfare, disease prevention and harvesting.

"We see the decision by Costco to bring its poultry supply in-house as a result of three primary drivers — surety of supply, visibility up the chain and cost control," said Will Sawyer, lead animal protein economist at CoBank. "The ability to control the consistency of bird weights enhances food preparation and safety. Locating the facility in Nebraska also provides access to feed at favorable costs, a reliable water supply and a comparatively advantageous labor market."

The Nebraska complex will be able to process 100 million birds per year with one-third of the rotisserie program being produced in-house. The facility will also process chicken parts.

*(continued on next page)*

## **CoBank: Retailers may follow Costco's lead with poultry** *(continued from previous page)*

If Costco's foray into production and processing is successful, it could be the model for other food retailers and food service companies to vertically integrate in other protein sectors.

### **Would this model work with beef, pork processing?**

However, Sawyer suggested this approach presents significant risks and challenges to other U.S. meat sectors, particularly beef and pork.

"Food retailers will need to evaluate a number of risks in order to justify the investment of time and capital required to build their own production capacity," said Sawyer. "Beef packers have historically yielded very tight margins, and with declining per capita beef consumption the sector would be unlikely to meet its return objectives. Pork processing brings the risk of very large exposure to export market risks. Additionally, retailers will need to consider food safety risks, negative profitability in production and whole animal utilization to justify such investments."

Of the three major proteins, *poultry is the most appealing for retailer integration*. Opportunities for further integration in poultry will likely be focused in secondary and further processing rather than primary processing, said Sawyer.

If Costco's chicken production is successful, it will undoubtedly prompt questions across agricultural supply chains and lead other food retailers and foodservice companies to reexamine their business models, CoBank's report concludes. ▢

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## **Whole Foods Sues Animal Activist Group**

Sept. 22, 2018 information from an article by Will Coggin in [The Industry Update Newsletter](#)

Whole Foods has filed suit against a radical animal activist group. The group claims Whole Foods' suppliers are guilty of animal cruelty—this group is against all animal products, no matter how humanely they are raised—and plans a weeklong protest inside Whole Foods stores in Berkeley, CA starting Sunday (Sept. 23, 2018). This particular group has previously protested one of the restaurant chains, and some of its members were recently criminally charged in connection with breaking into farms. ▢

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## **Animal Advocates Claim Consumers Want "Slaughter-free" Meat**

Oct. 6, 2018 By Breanne Kincaid from the *Industry Update Newsletter*

What will companies call meat grown from animal muscle cells in labs? According to a new survey from the [Good Food Institute](#) (GFI), consumers ranked "slaughter-free meat" as their most- or second most-preferred term. GFI is headed by a former [activist group] executive, which may explain why the results of this survey stand in contrast with prior data indicating consumer preference for the less emotive "clean meat." ▢

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## **Felony Charges For "Liberating" Chickens**

November 8, 2018 from [Drovers.com](#) by [Greg Henderson](#)

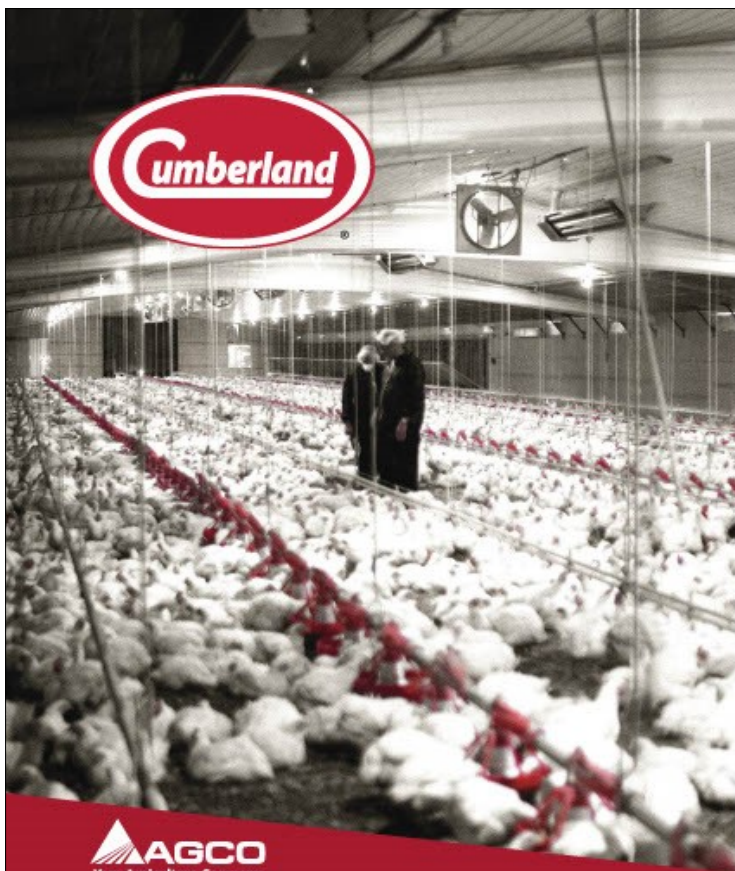
Six animal rights activists claimed they were liberating chickens during a protest in California in September. Prosecutors, however, called it stealing and have filed felony burglary, theft and trespassing charges against the six protesters.

Members of the group Direct Action Everywhere (DxE), Bay Area chapter, say they believed they were following laws when they conducted a protest at McCoy's Poultry Services, Petaluma, Calif., on Sept. 29. According to the [Petaluma Press Democrat](#), the protest was at least the third demonstration in 14 months targeting Sonoma County agricultural businesses, generating great concern among local farmers that they were being targeted by out-of-county animal welfare groups.

One protester charged for his actions, said he and others believed they were following laws allowing them to provide water and food to neglected animals when they went onto the Petaluma property to help chickens that appeared to be in distress. The Sonoma County Sheriff's office took custody of 15 chickens taken by the protesters, including six that were dead.

DxE claims its mission is "total animal liberation," but Sonoma County Farm Bureau executive director Tawny Tesconi called the animal welfare protesters "domestic terrorists."

The Sheriff's office arrested 67 people in September and apart from the six people facing felony charges, most received misdemeanor citations or letters offering pretrial diversion programs. ▢



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*Exciting Times at UT Martin as they retrofit a building on campus to grow broilers. All made possible by Tyson Foods Union City, Cumberland/GSI, QC Supply and TPA. Special thanks to Brian Johnson and Shane Joyner.*



# 12 people who transformed US poultry production

AUGUST 1, 2017 IN [WATTAG.NET](http://WATTAG.NET) BY [PAUL AHO](#)

*Chicken went from rare and expensive to bountiful and low-priced meat protein thanks to a host of innovators, including these 12 trailblazers.*

One hundred years ago, as the first WATT issue of Poultry Tribune was about to be published, nearly half of all Americans worked in farming and most farmers owned poultry of some kind. The crowing of roosters woke the nation every morning. Today, only 2 percent of Americans work on the farm and only a small fraction of those people raise poultry.

In the last 100 years, broiler chicken meat enjoyed an astounding success. Production rose from a negligible amount a century ago to 19 million metric tons today (42 billion pounds). How did this happen? Although the development of the industry took the combined efforts of thousands of people, this article takes note of just a few years.

## Commercial poultry production by mistake

Cecile Long Steele (1900-1940) aka Wilma Steele, of Delaware is credited with starting, quite by accident, the broiler industry 93 years ago. Her first broiler flock was a mistaken delivery of 500 chicks for a laying flock instead of the 50 chicks she ordered. She decided to grow them all for meat. When the surviving 387 chickens reached two pounds live weight (many weeks later) she sold them all reportedly for a hefty profit. She knew immediately she was on to something.

## Vertical integration takes hold in 1940s

That first phase of the broiler industry was one of mostly small commercial flocks. After Cecile, the next phase of the industry could be described as the development of vertical integration. Jesse Jewell (1902-1975) of Gainesville, Georgia, is credited with being the first to coordinate the broiler production stages. The independent businesses that once were involved in different stages of production were combined by “integrators.” The integrators combined (vertically integrated) production stages under one enterprise.

Jesse Jewell opened his own hatchery in 1940. That was soon followed by a processing plant and feed mill. He left the growing of the chickens to contract growers. For a time, he was the largest vertically integrated producer in the world.

While the structure of the industry was under radical revision, the location was changing as well. The Midwest and most of New England were abandoned as the industry became vertically integrated. The Southeast rose to broiler production prominence by capitalizing on the novel vertically integrated structure and unmatched advantages of low-cost land, labor and transportation services.

This phase of industry development was highly innovative on the production side of the business but not so much on the marketing side. Iced whole broilers were brought out onto the dock of the plant (remember the old Georgia Dock price?) and sold for whatever the market would offer.

While many of the stages of production were swallowed up by the vertically integrating industry, the remaining ancillary industries outside of the poultry firms were growing rapidly. These included primary breeding and pharmaceutical companies as well as host of other companies related to poultry equipment, agricultural lending, specialized vehicles and many others (even economists!).

## Marketing geniuses transformed poultry industry

The next phase of the industry started when chicken companies turned seriously to the question of marketing. One of the key components of marketing is developing a brand and an early genius at branding poultry was Frank Perdue (1920-2005).

Frank Perdue used a classic tool of marketing, product differentiation, to market his branded yellow tinged chicken to consumers. He was one of the first CEOs to appear on television. He is most famous for saying that it takes a tough man to make a tender chicken. In a memorable segment, he asked the question, “Why would you want to eat an unidentified frying object?”

The marketing phase increased the size of each surviving player (now just in the dozens) and those surviving players no longer sold just whole chicken. They added cut-up chicken, deboned chicken breast meat as well as processed and cooked items. The marketing horizon shifted as well to national and international.

Another iconic marketing genius of the marketing phase of the industry was Don Tyson (1930-2011). Don Tyson was in a hurry to create a company of an unimaginable size. By 2012, Tyson foods pushed beyond 2 billion chickens slaughtered in a single year. Tyson created a new definition of the economies of scale in production and marketing. He was the first to expand chicken marketing to a truly national scope and then the first to diversify into pork and beef becoming not a chicken company but a protein company.

## Now come the food companies!

The next phase of industry is now taking place. In this stage, chicken companies are likely to transform into food companies leaving behind their strictly chicken roots. In this phase, marketing will be truly global and, to satisfy economies of scale, i.e., most companies will be very large.

The year 2014 is chosen as the year that the next phase of the broiler industry started. It was in that year that Tyson purchased Hillshire Brands. The purchase of Hillshire for \$8 billion in 2014 moved the company in the direction of branded protein packaged food and away from its origins as a chicken company. In effect, Tyson is becoming a food company. *(continued on next page)*

## 12 people who transformed US poultry production *(continued from previous page)*

This article highlights four larger-than-life people who had an outsized impact on the development of the U.S. chicken industry. There are, of course, many others who deserve mention. The accompanying sidebar includes the four and eight more to make a perfect dozen.

### 12 trailblazers in the US poultry industry

Listed by name, year of birth/death, birth state, position, accomplishment

**Justin Smith Morrill** (1810-1898), Vermont – House of Representatives, Washington D.C.: Wrote the bill that established the U.S. land-grant system of agricultural colleges

**Colonel Harlan Sanders** (1890-1980), Indiana – Kentucky Fried Chicken, Shelbyville, Kentucky: Invented a global fried chicken franchise

**Dr. Leo Norris** (1891-1986), New York – Cornell University, Ithaca, New York: Legendary educator and a founder of poultry nutrition as a science

**Cecile Steele**, aka “Wilma Steele” (1900-1940), Delaware: Credited with starting the broiler industry 93 years ago

**Jesse Jewel** (1902-1975), Georgia – J.D. Jewel Company, Gainesville, Georgia: Invented vertical integration in the broiler industry

**Jack DeWitt** (1911-2012), Michigan – Big Dutchman, Holland, Michigan: Marketed the first automated poultry feeder produced on a commercial scale

**Henry Saglio** (1911- 2003), Connecticut – Arbor Acres Farms, Glastonbury, Connecticut: The father of the modern white feathered broiler

**Frank Perdue** (1920-2005), Maryland – Perdue Farms, Salisbury, Maryland: Developed and marketed the first real branded product

**Dr. Bob Baker** (1921-2006), New York – Cornell University, Ithaca, New York: Inventor of the chicken nugget and 40 other chicken products

**Don Tyson** (1930-2011), Arkansas – Tyson Foods, Springdale, Arkansas: Took the industry to a giant new level

**Dr. Richard Witter** (1936- ), Maine – Regional Poultry Research Laboratory, East Lansing, Michigan: Used turkey herpes virus as vaccine for Marek’s Disease in chickens; the first cancer vaccine

**Jim Sumner** (1947- ), Illinois – USA Poultry and Egg Export Council, Stone Mountain, Georgia: The master of global chicken diplomacy □

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## USPOULTRY Introduces New Online Management Training Program

Oct. 1, 2018 – To help develop new managerial talent, USPOULTRY is introducing a new online training program. “Introduction to Management: Basic Business Skills for New Managers” is a self-paced, interactive training program developed to provide a fundamental understanding of the financial and accounting tools available to help manage effectively, as well as provide the people management skills needed to be successful in today’s poultry business environment.

As important as it is to obtain technical expertise and to master the use of basic financial tools, it is also equally important to gain an understanding of the people skills required to interact with employees. Key concepts of the training include some of the important people skills needed for success, such as time management, communication skills, conflict management and evaluating employee performance.

New managers, while technically qualified, are not always prepared to address some of the basic business issues involved in successfully managing a department and its employees. The goal of the training program is to expose new managers to the myriad skills needed to succeed in today’s business climate and to encourage them to assess their own strengths and weaknesses as they continue to develop as effective managers.

This program will be a part of a new USPOULTRY Learning Management System (LMS) and is free to USPOULTRY members. The USPOULTRY LMS can be accessed by visiting the USPOULTRY website at [www.uspoultry.org/training](http://www.uspoultry.org/training). For more information and to register for this course, please contact Matt Spencer at [msspencer@uspoultry.org](mailto:msspencer@uspoultry.org). □

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## U.S. Poultry & Egg Association (USPOULTRY) is hosting a Poultry Handling and Transportation “Train the Trainer”

Workshop for poultry transporters and catch crews. The program is scheduled for 9 a.m. – 5 p.m., Friday, Dec. 7, at the University of Georgia Livestock Instructional Arena in Athens, Ga. The workshop offers a combined certification and “Train the Trainer” program specifically for those individuals wishing to become poultry handling and transportation certified trainers.

The program provides certification training for poultry transporters and catch crews. It was developed by a team of poultry scientists and veterinarians from Pennsylvania State University, the U.S. Department of Agriculture and transportation industry professionals and is managed by USPOULTRY. The training gives companies and contract crews and their employees an understanding of poultry welfare, good management practices, biosecurity and emergency planning. Attendees will also develop tools to train non-English speaking (primarily Spanish) employees. □

## Special Discount Offered to Poultry Growers at 2019 IPPE



TUCKER, Ga. – Nov. 26, 2018 – Poultry growers are invited to attend the 2019 International Production & Processing Expo (IPPE) with a special registration fee of only \$5 (onsite only), a terrific savings of \$95! IPPE will be held at the Georgia World Congress Center in Atlanta from Feb. 12 - 14, 2019.

“We encourage growers to take advantage of this opportunity to attend IPPE at such a wonderful price. They will see the newest innovations and services, as well as attend a wide range of education sessions. With the largest trade show floor ever in the history of

the show, there is a lot to see and do at the 2019 IPPE! We urge poultry growers to join us in Atlanta to experience it all,” said IPPE show organizers.

Poultry growers can attend the IPPE on Tuesday, Wednesday and Thursday. Registration will begin each morning at 7 a.m. at the Georgia World Congress Center, 285 Andrew Young International Blvd., in downtown Atlanta. A completed registration form and a 2019 Grower Days coupon are required. Registration forms will be located at the Expo and should be completed onsite. A printable coupon can be found below. □

### INTERNATIONAL PRODUCTION & PROCESSING EXPO GROWER DAYS

Admission Only \$5 (USD) | Feb. 12-14, 2019 | Georgia World Congress Center | Atlanta, Ga., USA



Compliments of  
U.S. Poultry & Egg Association  
American Feed Industry Association  
and the North American Meat Institute



*This is a great opportunity to network with others who share similar interests and concerns.*

To take advantage of the reduced admission fee, you must be a contract grower and bring this coupon along with a completed registration form to a cashier in the B or C Building registration lobby of the Georgia World Congress Center. Preregistration is not available.



□

## USPOULTRY Foundation Awards \$6,918 Student Recruiting Grant to Middle Tennessee State University

TUCKER, Ga. – Nov. 26, 2018 – The USPOULTRY Foundation awarded a \$6,918 student recruiting grant to Middle Tennessee State University (MTSU). The grant was made possible in part by an endowing Foundation gift from the Hubbard Farms Charitable Foundation. The grant check was presented by Barbara Jenkins, executive director of the USPOULTRY Foundation, to Dr. Kevin Downs, associate professor at MTSU. Joining in the presentation were Dale Barnett, executive director of the Tennessee Poultry Association, MTSU students and USPOULTRY staff members Paul Bredwell, vice president of environmental programs; Lisette Reyes, administrative assistant; and Denise Oberlton, meetings and events manager.

The funds will be used to develop three additional poultry courses, host the first annual Middle Tennessee Junior Market Broiler program, create a new MTSU Poultry Science Club and develop a MTSU collegiate poultry judging team.

The USPOULTRY Foundation awarded recruiting grants totaling \$328,300 for the 2018-19 school year to 34 colleges and universities across the United States with either a poultry science department or a poultry studies program. The student recruiting program dates to 1994 when the USPOULTRY board of directors established the Foundation to provide annual recruiting funds to attract students to poultry studies and ultimately into careers in the poultry industry.



From left: Paul Bredwell, vp of environmental programs, USPOULTRY; Lisette Reyes, administrative assistant, USPOULTRY; Dale Barnett, executive director, TPA; MTSU student Joseph Gulizia; Dr. Kevin Downs, associate prof at MTSU; Barbara Jenkins, executive director, USPOULTRY Foundation; MTSU students Jessi Schriver & Christina Davis; and Denise Oberlton, meetings and events manager, USPOULTRY □



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## Improving poultry gut health to produce safe food products

By Dr. Indu Upadhyaya, Asst Professor of Poultry Science, Tennessee Tech University



Over the past 50 years, the US poultry industry has transformed itself from a backyard business into one of the most advanced sectors of agriculture, supplying products to customers globally. However, safety of poultry products is still a significant concern. *Salmonella* and *Campylobacter* are two major foodborne pathogens that are responsible for the majority of poultry associated human illnesses. Therefore, it is important to develop strategies for reducing pathogen colonization in chickens as a first step towards food safety.

With advances in microbiome research, our understanding of gut microbiota composition and substances that modify the microbiota has improved. Microbial colonization of the gastrointestinal tract in poultry begins immediately post-hatch and establishes by 2 weeks in the small intestine. Thereafter, the microbiota modulates and alters itself based on environmental factors, age and dietary patterns of the birds. The mature chicken gut microbiota consists primarily of bacteria, followed by archaea and viruses. In addition to the use of antibiotic growth promoters to modulate the poultry gut, many studies have highlighted the effect of various prebiotics, probiotics and natural compounds to improve intestinal health.

Prebiotics are ingredients that nourish good gut microorganisms and may promote resistance to colonization of harmful pathogens. They aren't digested by the body and have been described as food for probiotics. Popular prebiotics are fructans and galactans. Numerous studies indicate they can enrich beneficial gut bacteria such as *Lactobacillus* and/or *Bifidobacterium* spp. These beneficial microbes in turn reduce colonization by *Salmonella* and *Campylobacter*. Some prebiotics such as mannanoligosaccharide can bind and remove pathogens from the intestinal tract and stimulate the immune system. Probiotics are live, beneficial gut microorganisms. Competitive exclusion is a popular, on-farm, method that employs one or more probiotic bacteria to establish in the chicken gut and exert colonization resistance to incoming pathogens.

Significant research conducted by our group and others in the last two decades has identified a plethora of compounds with antimicrobial efficacy and potential to regulate gut microbiome. These compounds could be used in feed or water and include fatty acids, polyphenols, flavonoids, lectins and tannins. Additional compounds with promise for controlling *Salmonella* and *Campylobacter* are caprylic acid obtained from coconut oil, trans-cinnamaldehyde from cinnamon bark, carvacrol from oregano oil and eugenol from clove oil.

Tennessee Tech University's upcoming Center for Excellence in Poultry Research will employ a multipronged approach for improving the gut health in broilers and layer hens. We will investigate the potential of several natural interventions in conjunction with current industry practices to improve poultry safety. Moreover, new technologies and novel carrier systems will be investigated to improve antimicrobial efficacy of tested compounds. Overall, these novel approaches would enable the poultry industry in Tennessee to produce nutritious and microbiologically safe poultry meat and eggs. ▢

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## Funding Opportunities & Free Renewable Energy Assessments Available for TN Farms

The [Rural Energy for America Program \(REAP\)](#) provides [loan financing and grant funding](#) to agricultural producers and rural small businesses for renewable energy systems and energy efficiency improvements throughout the year. This program helps increase American energy independence by increasing the private sector supply of renewable energy and decreasing the demand for energy through energy efficiency improvements. Over time, these investments can also help lower energy costs for small businesses and agricultural producers. Funding for Fiscal Year 2018 is available in a variety of forms, each under its own application process and timeline:

- Grants and/or Loans of \$20,000 or less - Applications are due **April 1, 2019**.
- Unrestricted Grants and/or Loans - Applications are due **April 1, 2019**.
- Energy Audit and Renewable Energy Development Assistance Grants - Applications are due **January 31, 2019**.
- Guaranteed Loans - Applications are accepted on a continuous cycle.

Funds may be used for renewable energy systems, such as biomass (for example: biodiesel and ethanol, anaerobic digesters, and solid fuels); geothermal for electric generation or direct use; hydropower below 30 MW; hydrogen; small and large wind generation; small and large solar generation; and ocean (tidal, current, thermal) generation. Funds may also be used for the purchase, installation, and construction of energy efficiency improvements, such as high efficiency heating, ventilation and air conditioning systems (HVAC); insulation; lighting; cooling or refrigeration units; doors and windows; electric, solar, or gravity pumps for sprinkler pivots; switching from a diesel to electric irrigation motor; and replacement of energy-inefficient equipment. [Click here to learn more and to apply for REAP financial assistance](#).

Additionally, the new [Tennessee Renewable Energy Assessment Program](#) is offering free renewable energy assessments of farms and rural businesses on a first-come, first-served basis. Funded through USDA's Rural Development Office, the program is operated by the Southeast Tennessee RC&D Council, EnSave, Inc., and the Tennessee Poultry Association. The assessments provide third-party evaluations that determine a proper size for a project (such as solar or wind) based on the amount of energy that a farm wants to offset. They also provide unbiased information on return-on-investment and lifetime financial projections to aid in business decision-making. Most importantly, the assessments can be used to apply for REAP, which offers grants up to 25% of project cost and loan guarantees up to 75% of project cost. Interested entities should call EnSave directly at (800) 732-1399 to sign up for an assessment. ▢

# Tennessee Renewable Energy Assessment Program

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1) Call EnSave at (800) 732-1399 with any questions or to request an application

2) Sign and return the application, and provide 12 months of energy use history

3) Receive your assessment within 8 weeks of sending in your materials, and use your assessment to make business decisions and access funding

**Interested in renewable energy but unsure how to start?**

**Have a project in mind but want a third party opinion?**

The **Tennessee Renewable Energy Assessment Program** provides FREE renewable energy assessments to help your farm or rural business navigate the best options for renewable energy. We provide an unbiased, third-party evaluation of your renewable energy project to determine viability and ensure your project is properly sized. Not sure what type of system is best for you? We can evaluate a few options and present a comparison. Each assessment includes an economic evaluation to determine your return on investment.

Your assessment can be used to access the USDA Rural Energy for America Program (REAP), which provides grants up to 25% of your project cost and loan guarantees up to 75% of your project cost.

**This program is offered on a first-come, first-served basis and funding is limited. Call today to reserve your spot!**

**Call EnSave at (800) 732-1399 today to get started**



*This program is funded by USDA Rural Development, and operated by the Southeast Tennessee RC&D Council and EnSave, Inc. This institution is an equal opportunity provider.*



# 16 innovations to change poultry production

NOVEMBER 16, 2018 IN [WATTAGNET.COM](http://WATTAGNET.COM) BY [GARY THORNTON](#)

*Poultry Tech Summit 2018 scoured the R&D and entrepreneurial world for the next tech breakthroughs that will cut production costs, speed processes and improve quality.*

The first-ever Poultry Tech Summit brought together tech innovators, venture capitalists and poultry companies from 20 countries to triangulate on the next generation of technology that will solve problems and open new opportunities in poultry production. Poultry Tech Summit, a WATT Global Media event, was held November 5-7, 2018, in Atlanta.

Inventor-entrepreneurs pitched innovations ranging from robots that patrol poultry houses to more mundane problem solvers like rust-proof gearboxes for the poultry processing plant. From live production to processing and all through the supply chain, every facet of the poultry business is touched by the innovations presented at Poultry Tech Summit.

## Robotics and automation

Robotics and automation generated intense interest for their potential to reduce labor, be on duty 24/7 and report remotely.

**1. Gohbot**, the poultry house robot that navigates poultry house floors using imaging sensors and machine learning, has the capability to detect and pick up floor eggs and sense environmental temperatures, gasses and light levels. Developers at Georgia Tech Research Institute project overall cost under \$6,000.

**2. ChickenBoy**, an autonomous ceiling-suspended robot incorporating artificial intelligence and sensors, assesses ambient conditions, health and welfare and equipment failures. Already on the market in Europe, developers at Farm Robotics and Automation SL planning to continue adding capabilities including removal of dead birds and analysis of litter moisture.

**3. Woody Breast Detection** with machine vision and high-speed cameras is capable of detecting and/or sorting breast fillets at normal line speeds without contacting or damaging fillets. Muscle rigidity is measured as the fillets move on and fall off a conveyor. USDA ARS developers say the system could be ready for market in one to two years.

**4. 3D Bird Deboning Cutting Virtual Reality** generates cutting trajectories for automated poultry processing systems. It is under development at Georgia Tech Research Institute. Testing started with models but now is on real birds.

## Food safety

Food safety is a critical concern in the poultry business, and the innovations at the Summit addressed both the live production and processing stages.

**5. Technicon Composite-housing Gearboxes** with steel endoskeletons eliminate rust, dissipate heat and withstand wash-down processes. Housings are corrosion-resistant and blended with an antimicrobial material that does not exhibit odor or staining in harsh environments. Market launch is perhaps two years away, and prices of the composite gearboxes are expected to be competitive with units with painted cast-iron housings.

**6. Clear Labs Next Generation Sequencing** uses advanced data analytics and bioinformatics tools for detection and serotype identification of *Salmonella* spp. in samples taken from carcass rinses, ground poultry, poultry parts, boot swabs and equipment swabs. The system's accuracy reduces inventory holding time and delayed shipments, confirmation costs and delays, and retail short-supply penalties.

**7. General Probiotics Antimicrobial Probiotics** are genetically modified microbes for use in the feed or water of poultry that can detect pathogens and secrete antimicrobials against pathogens, secrete multiple antimicrobials lowering resistance emergence and/or secrete engineered antimicrobial lysins. Prototypes against *Salmonella*, *Campylobacter* and *Clostridia* have been developed. The company expects to complete regulatory requirements and bring the products to market within three years.

## Big data and artificial intelligence

Harnessing the increasing amounts and complexity of data available to the poultry enterprise is not only a daunting task but a huge opportunity. So it's fitting that five innovations (more than in any other category) addressed this challenge.

**8. Little Bird Feed Cast System** estimates the amount of feed in on-farm bins using a small device to apply vibration to the bin surface along with sensors and software. The solar-powered units wirelessly report feed levels via web portals and a mobile app to growers, feed mills and integrators. The web portal presents a history of a house's feed levels and displays projections. Feed outages are reduced or eliminated and less feed is reclaimed at the end of a flock.

**9. PRYSSM (Poultry System Simulation Model)** simulates the water, energy, wastewater and labor utilization of a poultry processing plant. Based on VENSIM [<http://vensim.com/vensim-software/>] software, the model simulates all processes that require water use. Designed by developers at Georgia Tech Research Institute as a decision making tool with predictive capabilities, there are modules for labor, water, energy and wastewater processes.

*(continued on next page)*

## 16 innovations to change poultry production *(continued from previous page)*

**10. SDSS Multitier Statistical Process Control (SPC)** uses machine learning and historical location-based data as well as plant-level outcomes to dynamically model the live operations supply chain, predict outcomes and apply outcome scores. It allows quicker and more accurate identification and response to potential changes in variables that impact food safety or production outcomes throughout the poultry supply chain.

**11. Simple Vet Regulatory Compliance Data Management** applies blockchain technology to veterinary records to maintain transparency and traceability while also providing analytics to evaluate efficacy of treatments. A suite of integration tools integrate data sources, including public and private blockchains, traditional databases and systems and internet-of-things (IoT) enabled devices such as RFID tags and remote sensing technology.

**12. AbuErdan Poultry Value Chain Management** uses predictive analytics and deep learning analysis to display KPIs and forecast future performance throughout the supply chain. An integrated view of operational data allows finished product to be traced back through the value chain at a minute level of detail. The cloud-based platform uses blockchain technology and deep learning neural networks to monitor poultry operations at large scale and across regions.

### Life sciences

**13. Mazen Animal Health Edible Vaccines** enable chicken producers to dose room-temperature stable vaccine in the feed for both mucosal (in the gut) and systemic (intracellular) protection against coccidiosis. The technology platform inserts genes for specific antigens into corn plants to create the vaccines. The developers are seeking \$5 million to \$6 million in funding, which they say would allow the technology to be on the market within four years.

**14. TyraTech Phytogenic Blends for Coccidiosis Control** chemically block receptors specific to parasites and physically disrupt the parasite cuticle. The blends are composed of GRAS-listed terpenes that naturally occur in food plants known to be safe as food flavorants. Using a proprietary encapsulation technology, the formulation will be active in the intestine of the chicken.

**15. Transport Genie** records micro-climate conditions of live poultry during transport, including real-time communications with the driver and key stakeholders. If a threshold is exceeded, an alert is sent automatically. The sensor can be used by processors to improve bird welfare during the loadout, in transport and in plant holding sheds.

**16. eggXYT CRISPR Gene Editing Technology** inserts a bio-marker in the DNA of male chicks at the parent stock level to create an optical signature in embryos detectable at the breeding/hatching operation. Upon scanning of incoming eggs, those with male embryos are diverted to food production. A pilot study in a poultry layer flock is planned for late 2018. Developers are said to be in negotiations to incorporate the technology in the stock of a major breeding company.

### Nanotechnology for virus detection

In what is the 17<sup>th</sup> innovation, the Poultry Tech Summit attendees also learned about a nanotube device under development by Virlock Technologies LLC that can trap avian flu viruses for early detection.

Mauricio Terrones, professor of physics, chemistry and materials sciences, Penn State University, described the innovation during his speech, "Nanotechnology and its impact on biotech." The device is able to selectively trap and concentrate viruses by their size.

Gary Thornton is editor and publisher at ClearPoultry.com. Email him at [Gary.Thornton.Media@Gmail.com](mailto:Gary.Thornton.Media@Gmail.com). □

## The New Generation of Automatic Deboning Machines

There is a great article in [WattPoultryUSA-digital.com](http://WattPoultryUSA-digital.com) on Sept. 28<sup>th</sup> featuring the new generation of automated deboning equipment available from TPA allied members **Marel, Inc.** and **Meyn America LLC**.

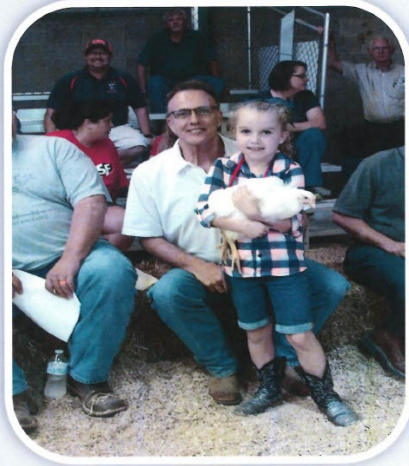
**Marel** has their FHF-XB front half deboning system and AMF-1 breast cap filleting system.

**Meyn** estimates that their Rapid Plus breast deboner M4.1 at 117 birds per minute saves 33 full-time equivalent employees.

To learn more about what this equipment does, and about other available equipment as well, go to [www.wattpoultryusa-digital.com](http://www.wattpoultryusa-digital.com). □



### 2018 Obion County Poultry Show



This is to recognize  
TN Poultry Association  
For purchasing the chicken from  
Lily Tuscan  
At the 2018 Obion County Fair

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# THE UNIVERSITY OF TENNESSEE

**KNOXVILLE, Tenn.** — The official launch of the Smith Center for International Sustainable Agriculture took place on Friday, November 16, on the University of Tennessee Institute of Agriculture campus in Knoxville. Established through a gift of UT alumni Donald and Terry Smith, the Smith Center brings science-based, sustainable agricultural solutions to meet the challenge of nourishing the world's population while restoring the planet on which we depend.



*The generous gift of Donnie and Terry Smith, pictured above, was celebrated at the official launch of the Smith International Center. Image courtesy UTIA.*

The event began at 1 p.m. and concluded at 3 p.m., with a brief program at 1:30 featuring Erica Barks-Ruggles, former U.S. ambassador to Rwanda. Tim Cross, chancellor of UTIA; Joe DiPietro, president of the University of Tennessee System; Jai Templeton, commissioner for Tennessee Department of Agriculture; and Jane Jolley, senior field director for Senator Bob Corker, also giving remarks.

"We are celebrating Donnie and Terry, and their generosity to their alma mater. We want to say thank you and celebrate their vision and transformational giving, which is already helping UTIA and global partners meet the challenge of feeding more than 9 billion people by 2050," says Tom Gill, Smith Center Endowed Chair for International Sustainable Agriculture.

The Smith Center facilitates UTIA faculty and staff in developing partnerships with local organizations and institutions all around the world. The Smith Center focuses on developing programs with partners in six regions of the world – Central America and the Caribbean, East Africa, Southeast Asia, Central and Eastern Europe, China and Brazil. The Smith Center has secured funding for ongoing projects from private foundations and a range of federal agencies, including USAID and USDA. □