# TPA NEWSLETTER

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# **COVID-19 Food Supply, Demand Shocks Disrupt Consumer Behavior**

May 19, 2020 by ELIZABETH DOUGHMAN in WATTAGNEWS.com

The global pandemic interrupted meat processing throughout the U.S.

The COVID-19 global pandemic caused <u>two major disruptions to the U.S. meat supply chain</u>, Jason Lusk explained May 18 during a panel discussion that was livestreamed on the <u>Purdue University</u> Krannert School of Management Facebook page.

#### Demand shift affects meat supply

The first supply chain shock began with the implementation of stay -at-home measures in mid-to-late March. Consumers flocked to grocery and other retail stores, stocking up on fresh meat, poultry and other goods, in preparation of self-quarantine measures.

"This was mostly caused by a demand shock. Food away from home was shut down and we had a peak of demand hit in grocery stores," said Lusk, a distinguished professor and head of the Department of Agricultural Economics in <a href="Purdue's College of Agriculture">Purdue's College of Agriculture</a>. "The way we deliver food to restaurants and cafeterias is different than the way we deliver food to grocery stores."

The retail sector worked hard to fill empty shelves and meet the increased demand. Within weeks, most grocery stores started looking more like what consumers expected.

continued on next page

#### **COVID-19 Financial Relief for Growers?**

Various programs are in place for farmers to pursue financial assistance per <a href="www.farmers.gov/coronavirus">www.farmers.gov/coronavirus</a>. Growers are advised to visit with both their current lender and their local FSA office (via phone only for now) to explore the possibilities. 

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#### **INSIDE THIS ISSUE**

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# COVID-19 food supply, demand shocks disrupt consumer behavior (continued from front page)

#### Meat supply chain gets interrupted

"The second major wave of disruptions was due to a supply shock in the meat processing sector. In early April, some big meat processing plants began to close or slow down," Lusk added.

In the U.S., <u>meat processing is mostly centralized.</u> The 10 largest beef processing plant process 60% of the nation's cattle, while 15 large pork processing plants are responsible for processing 60% of all hogs.

"We have a handful of large plants that process meat in this country," he said. "Any one of these plants is large enough that when it goes down, we have significant market disruption."

More than 20 meat processing plants temporarily halted operations in April to help mitigate and slow the spread of the virus. These closures <u>resulted in meat shortages that were felt by consumers.</u> Some stores implemented purchase limits for certain cuts or the total number of packages that could be purchased by each customer.

#### What's next?

Today, the food supply chain is regaining some of its lost momentum, although some experts have warned that the <u>country could see meat shortages throughout the summer</u>. In addition, <u>the high level of unemployment</u> means that, in many cases, consumer income has fallen, <u>which could lower demand for meat</u>.

For more information on the ways COVID-19 has affected consumer behavior, sign up for the <u>Chicken Marketing Summit series of webinars</u>. These webinars, held every Wednesday through July 1 and sponsored by Zoetis, also focus on issues that will continue to impact the poultry supply chain long after the pandemic is over.

See pages 13-16 for more COVID-19 related articles. □

# Secretary Perdue Issues Letters on Meat Packing Expectations

(Washington, D.C., May 6, 2020) U.S. Secretary of Agriculture Sonny Perdue [today] sent the following two letters to Governors across the nation and leadership of major meat processing companies. These letters establish the U.S. Department of Agriculture's (USDA) clear expectations for the implementation of President Donald J. Trump's Executive Order signed last week. The President's Executive order directs plants to follow the Centers for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA) guidance specific to the meat processing industry to keep these critical facilities open while maintaining worker safety.

"USDA expects state and local officials to work with these critical meat processing facilities to maintain operational status while protecting the health of their employees," Secretary Perdue said. "Meat processing facilities are critical infrastructure and are essential to the national security of our nation. Keeping these facilities operational is critical to the food supply chain and we expect our partners across the country to work with us on this issue."

Text of each of the letters can be found here: <u>Letter to Governors</u> and here: <u>Letter to Stakeholders</u>.  $\Box$ 

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#### Spotlight on primary poultry breeder Aviagen - Elkmont



Elkmont, Alabama, is a small community, just miles from the Tennessee border. With a population of only 434, it is home to internationally awarded artisanal goat cheese maker Belle Chevre, as well as multiple operations of global poultry breeding company Aviagen®. Aviagen plays a key role in the poultry supply chain, receiving hatching eggs from Tennessee breeder farms and providing day-old, Grandparent (GP) and Great Grandparent (GGP) chicks to more than 160 breeder farms in Tennessee and around the globe.

Aviagen's Elkmont facilities include:

- A feed mill provides high-quality, nutritious and biosecure feed to all Aviagen production farms in Tennessee.
- A hatchery supplies day-old chicks to breeder farms in Tennessee, and also exports chicks to customers around the world.
- A National Poultry Improvement Plan (NPIP)-authorized veterinary laboratory helps Aviagen meet and exceed the surveillance and regulatory testing requirements for the company's production farms in Tennessee.
- **GP and GGP egg distribution centers** receive hatching eggs from breeder farms in Tennessee.
- GP and GGP production complexes support Aviagen farms in Tennessee, including all facets of production that enable the company to supply domestic and export customers with chicks.





Aviagen Feed Mill-Athens, AL

Aviagen farm in TN







Elkmont, AL GGP Office

Collectively, these facilities employ 500 hatchery and production specialists, lab technicians, and other dedicated poultry professionals who work hard each day to demonstrate Aviagen's commitment to "Breeding Sustainability." This theme captures the company's mission to provide the breeding stock to produce a healthy source of protein for the growing communities of Tennessee and every corner of the globe, while also helping to sustain the businesses of our customers - the world's poultry producers - and reduce the impact of food production on our natural environment. continued on next page

#### **Spotlight on primary poultry breeder Aviagen - Elkmont** (continued from previous page)



#### Aviagen Elkmont employees – the company's valued resources

Aviagen employees throughout the Elkmont operations share their views on working for a primary poultry breeder and the role they play in the global poultry supply chain.

GP Complex Manager **Cory Shadden**, who has been part of the Aviagen family for nearly a decade, is responsible for coordinating all aspects of the Elkmont GP operation, including production, vaccination, cleanout/sanitation, facility maintenance and construction. He names "leading an outstanding team that readily adapts to the growing needs of our customers, and helping them supply current and future generations with a healthy and sustainable source of protein" as his greatest contribution to the poultry industry.



Dusty Garner, Egg Distribution Center Manager

A 14-year veteran of Aviagen with 20 years in the poultry industry, **Dustin (Dusty) Garner** manages the GP egg distribution centers for Tennessee, Alabama and Oklahoma. He says their collaborative spirit



Cory Shadden, GP Complex Manager

is among the best qualities of his teams. "The unique driving force behind a thriving and efficient work environment is the ability to work together as a team toward a central purpose, and that is what we strive for at each of the egg depots. We have been incredibly fortunate to employ a team of people who understand the importance of personal commitment to individual tasks, and who have a strong collective work ethic that positively impacts Aviagen's objectives on a large scale. Valuing these qualities makes us more productive, and ultimately more successful as a company."

After working for a decade in various microbiology and food quality assurance roles, **Dr. Lola Crespo** joined the Aviagen Elkmont Veterinary Laboratory in 2016. Her job is to manage the lab's daily operations, maximizing the quality of the laboratory's diagnostic testing. The lab is authorized by the National Poultry Improvement Plan (NPIP), and Lola

works to ensure the lab meets all requirements of the NPIP, as well as the International Standard Organization (ISO) 9001 international standard for a quality management system and the ISO/IEC 17025 standard for competency of diagnostics laboratories. She shares Aviagen's corporate value of "continuously improving on past successes to keep Aviagen's testing methodologies and techniques at the forefront of industry standards while at the same time meeting and exceeding customer expectations." And Lola believes that she and the team achieve this goal daily through their "positive attitude, respect for one another, teamwork, integrity and an unwavering customer focus. I see these values every day in my colleagues, and that makes us strong and able to grow together," explains Lola.



Dr. Lola Crespo, Elkmont Vet Lab Manager



Phil Keenon, Director of GGP
Operations

**Phil Keenon** is Director of GGP Operations for Aviagen, where he oversees the GGP operations in Tennessee, Alabama, Mississippi and Oklahoma. His career with Aviagen began more than two

decades ago, when he joined Ross® Breeders (which later became Aviagen) immediately after graduating from Auburn University. "I love animal agriculture and am proud of my team's huge contribution to the world's food supply chain. Aviagen's team approach makes this a tremendous place to work," Phil tells us.

Aviagen Elkmont Director of Hatcheries **Roberto Avila** directs all GGP and Pedigree hatchery operations. His career in the poultry industry spans more than four decades, with 36 years at Aviagen. Born and raised on a chicken farm that his father managed for more than half

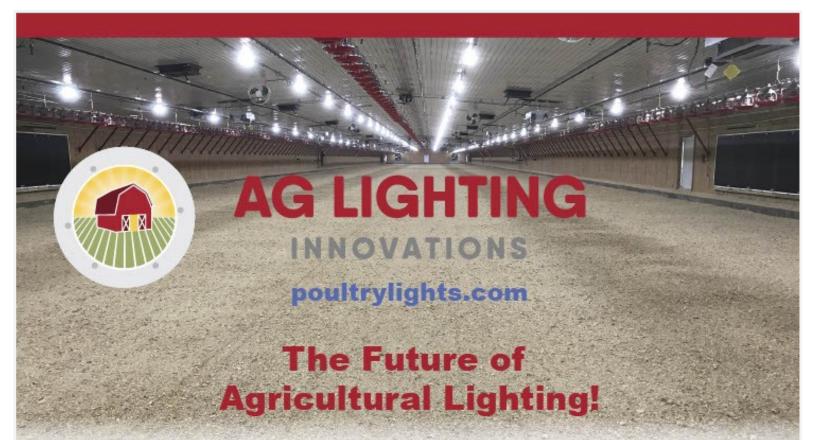


Roberto Avila, Director of Hatcheries

a century, Roberto reflects that the poultry industry is "in my blood. I enjoy working for a preferred poultry breeder. Collaborating with a great group of folks and interacting with my colleagues and customers from around the world make it satisfying to come to work each day."

(This is the second in a series of articles spotlighting our TPA poultry complex members. Over the next several newsletters, we plan to showcase each of our member complexes in random order.)

Visit our website at <u>www.tnpoultry.org</u> Like us on Facebook and Twitter (@tnpoultry)



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#### Tornado's toll on Tennessee poultry industry limited

March 5, 2020 by Roy Graber in WattAgNet.com

#### Only damage reported by Tennessee Poultry Association occurred at Tennessee State University

My heart goes out to people who experienced losses when an EF-4 tornado touched down in the early morning hours of March 3.

But as is the case with all tragic events, there are also things for which we can be thankful. Those in the poultry industry are among those, as few losses were reported.

The only meaningful loss I've learned of for the poultry sector occurred when three buildings on the <u>Tennessee State University</u> (TSU) farm in Nashville were destroyed by the storm.

Fortunately, no people were injured when the twister hit the farm, located away from the main campus, and students were on spring break when the storm hit. However, TSU agriculture officials said two calves were killed and several goats injured, according to a press release from the university.

And, according to a tweet from the <u>Tennessee Poultry Association</u> (TPA), one of the buildings destroyed was a poultry research house. However, the association said there were only about 50 birds inside at the time, and they were safely moved to another building.

TSU ag professor Richard Browning said the No. 1 priority now is the welfare of the animals at the university farm.

"Right now, we're trying to make sure the animals are sheltered, secured fencewise, and that they have water and feed," Brown said in the TSU press release.

A poultry barn at TN State University was damaged by a recent tornado, but the birds inside all survived.

While the majority of the storm's damage was sustained at the farm, university officials said there were some buildings and apartments on the campus sustained some damage, such as ripped off siding and rooftops. There were also issues with downed power lines, uprooted trees and debris around campus. Some vehicles were also damaged.

Preliminary damage estimates at the university exceeds \$20 million, but TSU officials are working with state agriculture officials, as well as the Tennessee Higher Education Commission and Tennessee Board of Regents, to do a more thorough assessment. Gov. Bill Lee had already surveyed the storm damage at the university.

Tyson Shelbyville's Putnam Co. tornado relief Cooking Team 2 fed tornado victims and volunteers on Friday, March 6. Pictured below are Sinclair Buntin, Brent Osborne, Brother Ron DeWitt, David Haman, Kristan Maddox and Leonard Locke.











On Sat, March 7. Tyson/Keystone, Cobb-Vantress, Woodman Life and Zoetis partnered to help the victims in the Putnam Co. area. Tyson/Keystone (Albany, KY) donated 450 lbs. of chicken. Woodman Life & Cobb-Vantress provided grills and delivered over 1000 chicken sandwiches into the disaster area for workers and victims.











#### **New WOTUS rule published**

4.27.2020 by Amanda Radke in BeefMagazine.com

A revised "Waters of the United States" published on April 21, which rolls back Obama-era rules, will take effect on June 22, 2020.

Click here for full article

#### **USDA SECURE Rule Paves Way for Agricultural Innovation**

U.S. Secretary of Agriculture Sonny Perdue announced a final rule updating and modernizing the U.S. Department of Agriculture's (USDA) biotechnology regulations under the Plant Protection Act. The Sustainable, Ecological, Consistent, Uniform, Responsible, Efficient (SECURE) rule will bring USDA's plant biotechnology regulations into the 21st century by removing duplicative and antiquated processes in order to facilitate the development and availability of these technologies through a transparent, consistent, science-based, and risk-proportionate regulatory system. This new rule will help provide America's farmers access to these critical tools to help increase agricultural productivity and sustainability, improve the nutritional value and quality of crops, combat pests and diseases, and enhance food safety. *Click here for full article* 

# NCC opposes petition that would declare 31 *Salmonella* strains as adulterants

On May 22, 2020, in Food Safety

NCC today filed comments to the Food Safety and Inspection Service (FSIS) opposing a petition filed in late January that requested FSIS declare dozens of *Salmonella* strains as adulterants.

NCC's full comments can be found here.

#### **DATES TO REMEMBER**

#### US POULTRY HATCHERY-BREEDER

**CLINIC** 

July 8-9, 2020 Nashville, TN

#### **CHICKEN MARKETING SUMMIT**

July 19-21, 2020 Fernanda Beach, FL

### US POULTRY FEED MILL MANAGEMENT SEMINAR

July 29-30, 2020 Nashville, TN

## TPA ANNUAL MEETING & SUMMER GETAWAY

August 7-8, 2020
DoubleTree Nashville Downtown

#### **SCHOLARSHIP FUNDRAISERS**

Sporting Clays October 7, 2020 Nashville Gun Club

Golf Tournament
October 8, 2020
Hermitage Golf Course

#### **NEWS FROM AROUND THE COMPLEXES**



**Aviagen®** welcomes **Dr. Marc de Beer** as its new President of North America, where he will be responsible for advancing the company's long-term business strategy and strengthening service to customers throughout Canada and the United States. Included in the new president's charge will be to continue to improve on current business efficiency and grow the North America region. Reporting directly to Aviagen CEO Jan Henriksen, he began the position on April 13th.

Dr. de Beer brings a wealth of commercial knowledge and expertise to this new role. After receiving a Ph.D. in Animal Nutrition from the University of Arkansas, he began his career as a Nutritionist for Aviagen in 2007, and later became Global Head of Nutrition. In 2011, he joined DSM Nutritional Products, serving in various leadership positions. He comes to Aviagen from Elanco Animal Health, where he was Senior Vice President, Food Animal and Global Nutritional Health, United States.

Koch Foods Chattanooga has announced the following changes to their team. David Thevenet is the new Live Operations Manager. He was previously the Broiler Manager and has a long history in the poultry industry. David has a degree in Poultry Science from LSU. Silas Dobbs is the new Broiler Manager. Most recently, he serviced broilers for Koch's Collinsville Complex. He has been with the company for ten years and served as Further Processing Superintendent and First Processing Superintendent in Collinsville. Silas has a BS in Poultry Science from Auburn University. Jody Harper is the Breeder Manager and has been with Koch since 2013. Former Live Production Manager Chris Raley is now in the Dalton, GA grow out office for the Koch - Collinsville operation.

**Hubbard** is pleased to announce that **Dr. James Bentley** has accepted the position as global technical director effective from April 6. James will lead the Hubbard technical team and reports to David Fyfe, global commercial director.

**Adam Lanier** is the new broiler manager at **Pilgrims Chattanooga**. Previous Broiler Manager **Scott Files** is now with Pilgrims in Albertville, AL.

#### **Cobb-Vantress Launches New Biosecurity Resource Hub**

Cobb-Vantress' ability to achieve critical genetic progress relies on uncompromising biosecurity — a commitment Cobb has made for decades. Now, customers from around the globe can better tap into Cobb's biosecurity expertise through a new resource hub. The hub includes a wide range of free resources, such as videos, posters and articles, all available in multiple languages including English, Spanish, Portuguese, Dutch, Italian, French, Turkish and Chinese.

Click here for full article

#### **ALLIED MEMBER NEWS**

Mark Bellamy is a Senior Strategic Accounts Manager for Kemin Animal Nutrition and Health North America covering TN. Mark joined Kemin in June of 2012 as a Key Account Manager in the southeastern United States. Mark has 34 years of experience in the poultry industry. He has a BS in Poultry Science from the University of Georgia.



# Merck Animal Health Awards \$270,000 in Scholarships to More Than 50 Veterinary Students Around the World

Since 2013, Merck Animal Health has partnered with the American Veterinary Medical Foundation (AVMF) to provide scholarship aid to hundreds of veterinary students. Through this partnership, in 2020, we are pleased to announce that 54 veterinary students from around the world received scholarships through the Merck Animal Health Veterinary Student Scholarship Program. The selected second- and third -year students pursuing careers in companion animal or large animal medicine will each receive a \$5,000 scholarship to support their educational endeavors.

Click here for full article

#### Zoetis Named a Top Company for Executive Women by NAFE

Zoetis Inc. announced that it has been named one of the 2020 "Top 70 Companies for Executive Women" by the National Association for Female Executives. This honor recognizes U.S. corporations where there is a strong focus on best practices that demonstrate effectiveness in moving women to senior ranks, including mentoring, involvement in employee-resource groups and leadership development training.

Click here for full article



### "Easy To Use.."

"I don't know how I did birds before the Chicken Reaper" Carrying buckets daily through the houses was taking its toll on my back. I dreaded doing my daily walk throughs when the birds were in their last weeks. After my first use of the Chicken Reaper it confirmed we made one of the best investments on our farm. I truly do not know how I managed to do birds before the Reaper. It is easy to use with little maintenance. If you are thinking about making the investment, do it. You will have no regrets."

—Donna

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#### **Senators Want Ban on Large-Scale Livestock Farming**

May 9, 2020 in The Ag Watchdog

U.S. Senator Elizabeth Warren announced Thursday that she will co-sponsor Sen. Cory Booker's legislation to ban large-scale livestock farms by 2040. "The COVID-19 crisis will make it easier for Big Ag to get even bigger, gobble up smaller farms, and lead to fewer choices for consumers," she remarked. Booker, a vegan, is an ally of HSUS and has also backed legislation targeting check-offs.

#### **APHIS Leadership Signs Poultry Regionalization Agreement with China**

**WASHINGTON, March 23, 2020** – The U.S. Department of Agriculture's Animal and Plant Health Inspection Service is announcing a regionalization agreement with China for safe trade of poultry products. The countries agree to follow all international standards, guidelines and recommendations related to regionalization. This agreement will help our farmers and ranchers by maintaining export markets, which will reduce the overall impact of an outbreak to our agriculture industry.

Regionalization is an important tool animal health officials can use to protect against disease spread. When disease strikes, unaffected regions are still eligible for international trade. Because the animals in regions affected by diseases are kept separate and maintained under trade restrictions, there is a minimal risk of those animals spreading disease. APHIS used regionalization to ensure continued trade with other countries in many recent foreign animal disease outbreaks, including highly pathogenic avian influenza and virulent Newcastle disease.

The agreement with China allows trade of poultry products to continue from unaffected regions of the country should the U.S. detect any future cases of highly pathogenic avian influenza or virulent Newcastle disease. This is because the U.S. demonstrated to China their ability to effectively regionalize for avian influenza, allowing safe trade from free zones. In return, the U.S. agrees to implement regionalization for Chinese poultry products once China has officially recognized free-zones in place. Both countries also agree not to impose trade restrictions on each other for findings of low pathogenic avian influenza.

The regionalization agreement details numerous steps the U.S. and China must take if high pathogenicity avian influenza is found in poultry to ensure the safety of the birds. These steps include controlling the area, notifying the other country, suspension of imports and exports, culling and disinfection, monitoring the situation, and resumption of imports and exports.

This action is part of the continuing progress to implement the U.S.-China Phase One Economic and Trade Agreement. The agreement entered into force on February 14, 2020, and this poultry regionalization action builds upon measures that were previously announced on February 25 and March 10.

USDA plays a vital role in ensuring the free flow of agricultural trade by certifying that the millions of U.S. agricultural and food products shipped to markets abroad meet the importing countries' entry requirements. USDA also keeps export markets open for American agricultural products by addressing concerns about plant and animal health raised by U.S. trading partners.

#### **US poultry shipments to China boosted**

March 16, 2020 by Natalie Berkhout in PoultryWorld.net

Retaliatory tariffs are not being imposed on chicken products shipped from the US to China following a decision to make poultry eligible for exemptions to extra duties, Reuters reports.

#### Chlorine-washed chicken issues part of upcoming US/UK trade agreements

March 11, 2020 by Kimberlie Clyma in MeatPoultry.com

There has been a ban on chicken exports to the EU since 1997.

Click here for full article □

#### Plant-based protein not thought of as comfort food

May 7, 2020 from WattAqNet.com by Roy Graber

Photographs of grocery sections with empty meat and poultry sections but still filled with <u>plant-based meat alternatives</u> have been plentiful on the internet during the COVID-19 pandemic.

When asked why the demand for meat alternatives has not been so high in recent weeks, Enjoy Food Enjoy Life's <u>Nicole Rodriguez</u>, a registered dietitian and certified personal trainer, said the fact that traditional meat and poultry may be disappearing from the stores at a faster pace, simply because it is not what might be referred to as "comfort food."

Click here for full article

Read more about alternative meat sources on pages 45-47.

# Litter Management litter / man-age-ment

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#### 6 chicken consumer trends that emerged during COVID-19

MAY 13, 2020 IN WATTAGNET BY ELIZABETH DOUGHMAN

New shopping behaviors emerged as a result of the global pandemic.

The COVID-19 global pandemic changed how – and where – consumers purchase chicken.

"When you think about the massive and unprecedented changes we're seeing during the global pandemic, new habits are being formed in the vast majority of households during the shelter-at-home more than any other time than in history," said Richard Fielding, principal, Media Center of Excellence at IRI.

Fielding discussed the ways COVID-19 affected chicken consumers on Wednesday, May 13 during How to Build your chicken brand during a pandemic. The presentation was the first in the Chicken Marketing Summit series of seven webinars, proudly sponsored by Zoetis. Registration for the webinar series is free.

During the webinar, he highlighted six emerging consumer trends as especially important:

#### Purchase cycles expand and contract

Stay-at-home measures implemented as a result of COVID-19 made consumers panic buy at grocery stores, <u>filling freezers with chicken and other proteins</u> to reduce the number of trips out. In the meantime, <u>foodservice demand decreased dramatically</u>, as schools and hotels have closed and restaurants have shifted to takeout and delivery only.

#### **New shopping behaviors**

Shoppers, afraid to go out, are turning to delivery services and other forms of ecommerce to purchase chicken for their households.

#### Long-term consumer trends reverse

"Long-term consumer trends moving towards organic and more natural foods have seemingly reversed overnight. We are seeing a return towards consumers wanting shelf-stable and added preservative products," Fielding explained.

#### Comfort foods are king

Comfort brands, such as <u>Kraft Mac & Cheese</u>, have seen significant increases in sales during the global pandemic. In the poultry industry, stress-baking contributed to a nationwide egg shortage.

#### **Broader adoption of self-care**

COVID-19 concerns have led to increases in exercise, diet and the use of over-the-counter medications and dietary supplements.

#### More flexibility in trying new brands

<u>Plant closures due to COVID-19</u> have impacted the meat supply chain, <u>driving consumers to new products based on what is available in stores.</u>

"Consumers are showing an increased openness and willingness to try new categories and brands. This is driven by a limited assortment and product substitution," Fielding said. "IRI benchmarks show that if you reach new brand buyers within four weeks of their first purchase, you will on average convert 13% of them into repeat customers."

#### Smaller pool of refugees could exacerbate industry's labor crunch

By Tom Johnston on 3/12/2020 in MeatingPlace.com

As the national debate about immigration and refugee resettlement rages on, meat processors seeking starting-level workers will get little help from an administration keeping a campaign promise to reduce the flow of migrants into America.

Refugees fleeing war, persecution or violence in their home countries will be admitted at a record low this year. And if a presidential executive order, currently being challenged in court, is upheld, state and local governments for the first time will have to affirmatively opt in to participate in the U.S. government refugee admissions program.

The result will be a smaller pool of refugees starting new lives in the United States. Meat and poultry companies will work harder and search farther to fill grueling plant jobs that few American residents want.

Read more in our Issues story, "Unsettling," in the March edition of Meatingplace magazine. 

□

#### What do positive COVID-19 tests for poultry workers mean? (blog)

May 5, 2020 in WattAqNet.com by Terrence O'Keefe

Terrence O'Keefe: What do the high number of coronavirus positive test results for meat and poultry processing plant employees mean for the industry?

#### Chicken Processors Redoubling Efforts to Keep Essential Workers Safe and Healthy

National Chicken Council on April 8, 2020

"These are certainly trying and unprecedented times, and chicken processors are doing everything they can to 1) keep their employees safe and 2) work to keep chicken on the shelves - in that order," said National Chicken Council President Mike Brown. "Our members are following all of the CDC and local health department guidelines, and many have consulted with infectious disease physicians to develop site plans."

Brown noted that companies have enacted many additional measures to keep workers safe, including:

- Increasing cleaning, sanitation and fogging frequencies and intensities for equipment and common areas at processing facilities. It is sanitation on steroids right now
- ♦ Increased frequency of hand washing/sanitation for employees
- Encouraging employees to stay home if they are not feeling well or believe they may have been exposed to the virus, while still receiving pay and no attendance penalty
- ♦ Heightened employee screening for any signs of illness, including temperature checks before entering the plant
- Practicing social distancing not only in common areas, such as break rooms and cafeterias, but also on production lines where possible, including but not limited to:

Staggered breaks; staggered start/stop times of shifts; creating additional break areas including outdoor areas; installing plastic dividers between workstations; and increasing the space between workers on the production floor

- ♦ Implementing travel restrictions and only allowing essential personnel into the plant
- ♦ Educating employees about the virus and ways to avoid catching it
- Treating worker safety as a non-competitive issue and sharing best practices
- Company nurses have been trained on CDC protocols for COVID-19. Any employees expressing symptoms are sent immediately to the nurse
- Each company policy is different, but companies are offering paid sick leave, bonus/hazard pay, free chicken for employees, waiving the waiting period for short term disability, making PTO policies more flexible, and many other ways to show appreciation for those workers who are helping to support an entire nation right now

"Since the U.S. government has deemed food manufacturing as critical infrastructure, we treat very seriously our responsibly to keep workers safe while providing protein for families," Brown added. "The essential critical industries working to care for, feed, and protect Americans are selflessly serving the nation by showing up to work during this time of crisis. While the work of our public health professionals, first responders, and public safety employees is unquestioned, we must also adequately recognize the service of food industry workers who protect our food security. NCC is urging Congress to support food industry workers in any aid package that might be considered when Congress returns in late April."

#### **Revised Enforcement Guidance for Recording Cases of Coronavirus Disease 2019 (COVID-19)**

Under OSHA's recordkeeping requirements, COVID-19 is a recordable illness. This memorandum provides updated interim guidance to Compliance Safety and Health Officers (CSHOs) for enforcing the requirements of 29 CFR Part 1904 with respect to the recording of occupational illnesses, specifically cases of COVID-19. On May 26, 2020, the previous memorandum on this topic[1] was rescinded, and this new memorandum went into and will remain in effect until further notice. This guidance is intended to be time-limited to the current COVID-19 public health crisis.

<u>Click here for full article</u>

#### **How COVID-19 is impacting poultry farmers**

May 8, 2020 video in WattAgNet.com by Austin Alonzo

"Poultry farmers working on a contract are better off than livestock growers working independently."

#### **COVID-19 Impacting Poultry Producers' Insurance Policies**

May 27, 2020 in WattAgNet.com by Deven King

As we all know the outbreak of COVID-19 has created many challenges for poultry producers and in many cases disrupted standard operations. Business Interruption Insurance is something that is front and center for many companies right now, and from all the news out there it appears in most cases that business interruption coverage is not going to respond to this pandemic.

<u>Click here for full article</u> □

#### **COVID-19: Poultry shifts production from foodservice to retail**

April 8, 2020 in WattAgNet.com by Elizabeth Doughman

With more consumers staying home because of COVID-19, poultry producers are pivoting resources and supplies to meet the shifting demand from foodservice to retail.

The widespread closure of restaurant dining rooms, schools and conferences has shrunk foodservice activity, while retail stores are experiencing high demand as consumers stockpile food for at-home dining.

Companies throughout the food supply chain worry about this dramatic shift because a 10% drop in out-of-home food spending results in only an additional 3% in retail food spending, Rabobank estimates. The National Chicken Council (NCC) estimates that approximately 50% of chicken volume in the U.S. goes towards foodservice.

#### Is shifting production an opportunity?

Consumers, authorities, food processors and retailers worried that empty grocery shelves meant nationwide food shortages. Many poultry producers have converted foodservice lines into retail in an attempt to meet the changing consuming demand.

"Exploring supply gaps in the retail channel remains as an opportunity to offset – at least partially – revenue losses from foodservice. However, pressure may still be felt," JP Frossard, analyst consumer foods at Rabobank, said in a statement. "Some players may face limited availability of retail-size packaging, different specifications and distribution constraints, as well as working capital restrictions during these turbulent times."

#### Challenges associated with the shift

Transitioning from foodservice to retail poses numerous problems as the industry tries to remain productive amid a pandemic.

One of the biggest challenges has been the surplus of chicken wings. Foodservice demand for wings usually spikes around major sporting events, such as the National Collegiate Athletic Association's (NCAA) March Madness. However, March Madness has been canceled due to COVID-19, leaving foodservice suppliers with an excess amount that they are now trying to redirect towards retail with varying levels of success.

Employee absenteeism at plants – either due to sickness or fear of getting sick – is another issue the poultry industry will have to address. Additionally, screening measures that have been implemented to protect employees from getting COVID-19, such as temperature scans, can add costs and slow production in the lines.

#### Study: Chickens, pigs not susceptible to COVID-19

April 16, 2020 in WattAgNet.com by Elizabeth Doughman

**Pigs and chickens cannot get sick from COVID-19**, although fruit bats and ferrets are susceptible to the zoonotic disease, finds a new study conducted at the **Friedrich-Loeffler-Institute (FLI)** in Germany.

These results match the preliminary findings of a preprint study in China that is currently awaiting peer review.

#### What exactly is COVID-19?

COVID-19 is part of a family of single-stranded RNA viruses – called coronaviruses – that cause respiratory and gastrointestinal diseases in the species they infect, including poultry.

Up to 75% of emerging infectious diseases worldwide – including coronaviruses – are zoonotic, which means that they can infect people and animals. In the case of COVID-19, **the virus is thought to have originated in bats**, although an intermediary animal may have also played a role in transmitting the virus to humans, scientists say.

"The coronavirus is an example of how pathogens can move between humans and animals," Sally Rockey, the Executive Director of the Foundation for Food and Agriculture Research (FFAR) said in a statement announcing five new Vet Fellowships for pandemic and zoonotic research in food animals. "Understanding new diseases in animals, and especially how they spread, is vital to slowing transmission and developing remedies."

#### The study

Egyptian fruit bats, ferrets, pigs and chickens were inoculated nasally with the virus, mimicking the natural route of infection in people.

Initial results revealed that the bats and ferrets could be infected with COVID-19. The finding in ferrets, in particular, is important because it suggests that ferrets could be a **good animal model to test possible vaccines or drugs for COVID-19.** 

Under experimental conditions, neither the pigs nor the chickens showed any susceptibility to COVID-19. Researchers examined whether the animals got infected, if the virus was able to replicate within the bodies of the pigs or chickens, if the animals displayed any symptoms and even tested if the animals excreted the pathogen.

The study indicates that the two farm animal species are not affected by the virus and **do not pose any additional risk to human health.**More complete results from the study will be released in May.

#### Tyson explains use of walk-through temperature scanners

April 14, 2020 in WattAqNet.com

Tyson Foods says it is working hard to protect team members during the challenging and ever-changing COVID-19 pandemic, while continuing to fulfill its critical role of helping feed people across the country.

#### FAO: Recession due to COVID-19 could leave millions hungry

May 5, 2020 in World-Grain.com

A coronavirus (COVID-19)-triggered recession could leave millions of people hungry, which is why countries should take measures now to lessen the impacts, according to a new policy brief from the Food and Agriculture Organization (FAO).

#### Survey: Integrators reduce egg sets as COVID-19 affects demand

May 26, 2020 in WattAqNet.com by Austin Alonzo

Austin Alonzo: Poultry producers are pulling back their egg sets, according to a new survey.

Click here for full article

#### 1.5 million North Carolina chickens depopulated

May 27, 2020 in WattAqNet.com by Roy Graber

About 1.5 million chickens in North Carolina are being depopulated in North Carolina due to a lack of available processing capacity as poultry plants deal with outbreaks of COVID-19 among workers.

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#### Highly pathogenic avian flu hits South Carolina turkeys

April 9, 2020 in WattAqNet.com by Roy Graber

A commercial turkey flock in Chesterfield, South Carolina, has tested positive for highly pathogenic avian influenza (HPAI), making it the first confirmed case of HPAI in the United States since 2017.

#### South Carolina avian influenza control zone released

May 4, 2020 By Roy Graber in WattAgNet.com

No other flocks within the control area have shown signs of avian influenza.

Click here for full article

#### North Carolina Reports Low-Pathogenic Avian Flu

March 18, 2020 by Tim Lundeen in FeedStuffs.com

As part of routine surveillance for H5/H7 avian influenza, H7 low-pathogenic avian influenza (LPAI) was detected in a commercial turkey breeder and two turkey meat flocks in North Carolina, according to a report from the World Organization for Animal Health (OIE). Sequencing determined the subtype/pathotype of H7N3 on all premises.

Clinical signs noted were a slight drop in egg production in the turkey breeder flock. The plan for confirmed positive flocks is euthanasia (foam method) and disposal.

#### New cases in central Europe's avian flu hotspots

April 16, 2020 in WattAqNet.com by Jackie Linden

More than 60 outbreaks of highly pathogenic avian influenza (HPAI) have now been confirmed in Hungarian poultry flocks in less than one month. Bulgaria, Taiwan, and Vietnam have also reported new outbreaks.

#### Influenza Antibodies Reduce Disease in Chickens

April 3, 2020 in FeedStuffs.com

A potential new influenza treatment using synthetic antibody molecules administered to poultry may reduce the symptoms of avian flu as well as decrease the amount of virus treated birds shed into the environment, according to The Pirbright Institute in the U.K., which engineered the molecules. Pirbright said these results suggest that there is potential for their use as immunotherapy treatments to reduce the burden of influenza in poultry.

#### **Swift Communication Key to Limiting Risk of Poultry Disease Outbreaks**

March 5, 2020 in PoultryHealthToday.com

Excellent systems of communication between farm staff and veterinarians are critical when it comes to managing disease outbreaks and reducing their potential spread. Eric Heskett, DVM, PhD, at Case Farms in North Carolina, told Poultry Health Today that communication is critical to being able to act as fast as possible to contain outbreaks, identify disease and protect bird health.

#### California Expects to Release VND Quarantine in June

May 26, 2020 in FeedStuffs.com

In a brief post, California state veterinarian Dr. Annette Jones said May 22 the California Department of Food & Agriculture (CDFA) and the U.S. Department of Agriculture continue to make significant progress toward eradicating virulent Newcastle disease (VND) and completing freedom of disease testing. Jones said CDFA is on track to release the regional VND quarantine in southern California in the first half of June.

#### **Controlling Infectious Bronchitis in Broilers Starts with Breeder Vaccination**

April 3, 2020 in Poultry Health Today

Protocols vary widely, but vaccinating broiler breeders against infectious bronchitis virus (IBV) remains an important strategy for protecting broiler progeny against the virus, according to panelists at a roundtable on "Infectious Bronchitis: Evolving strategies for an evolving virus." Guillermo Zavala, DVM, PhD, founder of Avian Health International and an adjunct professor, University of Georgia, said although IBV maternal-antibody transfer isn't very protective for progeny, it probably contributes partially to protecting young broilers as well as protecting breeders.

*Click here for full article* 

#### DMV/1639 - Now the Focus of Many IBV Control Programs in US Flocks

April 13, 2020 in PoultryHealthToday.com

Variants of infectious bronchitis virus (IBV) affecting broiler flocks differ regionally, but the strain causing the most concern lately appears to be Delmarva/1639 (DMV/1639), poultry veterinarians reported at a recent roundtable. David French, DVM, formerly with Sanderson Farms and now with the University of Georgia, said DMV/1639 was the biggest IBV issue at his company. "It caught me completely by surprise."

Click here for full article

#### Caution: Simple errors can derail IBV vaccine effectiveness

April 27, 2020 in Poultry Health Today

Common pitfalls that can occur while vaccinating broilers against infectious bronchitis virus (IBV) could derail vaccine effectiveness, panelists cautioned during an industry roundtable, "Infectious Bronchitis: Evolving Strategies for an Evolving Virus."

Click here for full article

#### Poultry experts cite frustration with infectious bronchitis variants

April 30, 2020 in PoultryHealthToday.com

New, variant strains of infectious bronchitis virus (IBV) in poultry will continue to emerge, but their control may depend primarily on strategic vaccination protocols that provide cross-protection from available IBV vaccines, panelists indicated at an industry roundtable, "Infectious Bronchitis: Evolving Strategies for an Evolving Virus."

Mark Jackwood, PhD, a molecular virologist at the University of Georgia known for his IBV expertise, explained "the virus mutates; that's what it does and we can't change that."

He added, "If we do a good job of vaccinating like we're supposed to, I think it actually helps with keeping the virus from replicating as much."

Click here for full article

#### **Essential Adjustments That Improve IB Vaccine Efficacy in Broilers**

May 7, 2020 in Poultry Health Today

A few essential adjustments in the way infectious bronchitis vaccines are handled and administered at the hatchery can improve vaccine efficacy, Brian Jordan, PhD, assistant professor, University of Georgia, told Poultry Health Today.

"Frozen vaccines that come out of liquid nitrogen have to have a little bit more care," Jordan cautioned. When the vaccines are put into warm water for quick thawing so they can be mixed and taken to the production floor promptly, "...a lot of hatcheries actually make mistakes. That water bath does not need to be too warm," he said.

Click here for full article □

#### Infectious Bronchitis: Evolving Strategies for an Evolving Virus

May 19, 2020 in Poultry Health Today

The evolution of infectious bronchitis virus (IBV) is a continuing challenge. Finding the right combination of vaccines to cross-protect is often critical. This special report features highlights from a roundtable event, hosted by Zoetis, where renowned IBV experts shared their experiences and strategies.

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#### **Controlling Sudden Death Syndrome via feed strategies**

May 6, 2020 in AllAboutFeed.com by Dr Salah Hamed Esmail

Sudden Death Syndrome (SDS) is a problem that has been observed in many countries where other major poultry diseases have been brought under control. Smart feeding strategies can limit SDS incidence and damage.

Sudden Death Syndrome occurs in broiler chickens of all ages and at the onset of sexual maturity in broiler breeders. Affected birds unexpectedly jump in the air, convulse, squawk, flip over and die. Mortality due to SDS ranges from 0.5% to 9.62% in broiler chickens and from 0.5% to 3.0% in broiler breeders. Economically, SDS is a major source of instant profit loss. According to US statistics, preventing SDS would result in an estimated saving of US\$ 130-265 million. The control of SDS, therefore, is considered of paramount importance in alleviating the problem. Feeding strategies and other management strategies can help to achieve this.

#### Tackling Campylobacter jejuni is difficult

April 24, 2020 in PoultryWorld.Net by Jasmien Vandeputte

Research looked at the possibility of <u>in ovo</u> vaccination of broilers against <u>Campylobacter jejuni</u> using a bacterin and subunit vaccine. Sufficient protection was not found.

Click here for full article

Early intervention critical for effective control of Campylobacter in poultry processing

April 23, 2020 in Poultry HealthToday

The US poultry industry has been struggling with *Campylobacter* ever since the USDA's Food Safety Inspection Service started using a more sensitive test for detection of *Campylobacter* in chicken rinsate samples.

Several USDA-approved bacterial interventions are available for managing *Campylobacter*, but they need to be used at the right time during processing to be effective.

"They need to be applied early in processing, before chickens are in the cut-up area, because that's when *Campylobacter* bacteria appear to be most vulnerable," Stephen Mixon, food safety technical specialist for Zoetis, told *Poultry Health Today*.

Click here for full article

#### Amino acid supplementation could mitigate wooden breast

April 30, 2020 in WattAqNet.com by Elizabeth Doughman

Amino acid supplementation could help reduce the incidence and severity of wooden breast in broilers without having a negative effect on feed conversion or yield, finds a new research project funded by the U.S. Poultry and Egg Association.

Click here for full article

#### **Keeping Up with Variant Reovirus Strains Remains Challenging**

March 6, 2020 in PoultryHealthToday.com

Poor uniformity, lameness and reduced water consumption are tip-offs that broilers may be infected with variant reovirus, Erin Riley, DVM, staff veterinarian at Sanderson Farms, told Poultry Health Today. The epidemiology for variant reovirus isn't clear, Riley said, but it spread across the southern US very rapidly through transport of live poultry and hatching eggs.

Click here for full article

#### **Imperfect Vaccines Limit Spread of Poultry Disease**

March 6, 2020 in FeedStuffs.com

Vaccines that typically manage disease symptoms but fail to prevent infection and spread are more effective than first thought in controlling the severity of a viral disease in chickens, according to recent research conducted at The Roslin Institute in the U.K. So-called "leaky vaccines" reduce the likelihood of chickens developing the painful symptoms of Marek's disease, a study showed. This benefit extends to unvaccinated chickens in the same flock as vaccinated birds, the researchers found.

<u>Click here for full article</u> □

#### Good flock management key to managing Mycoplasma synoviae resurgence

April 2, 2020 in PoultryHealthToday.com

Broiler producers need to take a fresh look at housing conditions and bird management to help counter the resurgence of *Mycoplasma synoviae* (MS) linked to an increase in raised without antibiotics (RWA) production.

Gregorio Rosales, DVM, PhD, an independent poultry health consultant from Athens, Alabama, said pathogenic variants of the disease have increased significantly over the last 5 years.

And while there could be a number of reasons for the increase in outbreaks, the trend coincides with the reduction in antibiotic use in broiler production.

# POULTRY HEAVE DAY Y HEALTH T

#### **Causes and consequences**

In addition to causing drops in production in broiler breeders and shell quality problems, pathogenic MS can affect feed conversion and uniformity in broilers, leading to an increase in condemnations.

In some cases, the disease in broilers can also cause an increase in respiratory diseases, especially in combination with other factors such as infectious bronchitis and even avian influenza.

Rosales said one of the other potential factors in the resurgence of the disease has been the increase in the use of live *Mycoplasma qallisepticum* (MG) vaccines.

When operations around the world start using live vaccines against MG, they need to reduce the use of antibiotics, which can interfere with vaccination," he told *Poultry Health Today*. "That has resulted in some of the flocks being exposed to MS.

"Also, the industry in many parts of the world has been growing, and MS is typically seen in areas where there is a heavy concentration of birds.

"In those areas, you often have commercial layers, broiler breeders and broilers all in the same area, which is conducive to more and more broiler breeders being close to [MS] infected flocks — particularly commercial layers, and in many cases, organic chickens or those raised in backyard operations. It looks like, in some cases, close to 60% of [backyard flocks] have MG or MS and sometimes even both."

#### Multiple approaches yield results

To combat the problem, Rosales said producers should take a combination of approaches, starting with sourcing mycoplasma-free stock from breeding companies and keeping birds free of infections throughout the production cycle.

In areas where there is a high risk of exposure to MS, Rosales said vaccination in broiler breeders with a live MS vaccine is a very useful tool — provided it is used correctly.

Environmental factors are also critical, so broiler producers should review their housing and ventilation to ensure broilers aren't under any unnecessary environmental challenges.

The combination of Mycoplasma infection in broilers and poor management seems to be a really bad combination," he said.

The impact of MS in broilers is seen on feed conversion, a greater incidence of respiratory problems particularly in combination with other challenges such as infectious bronchitis, cold weather, increased moisture in the litter, and in some areas even avian influenza. These factors combined with MS result in more air sac problems and condemnations at processing time.

Good ventilation is critical, and producers need to monitor conditions particularly at nighttime.

Many operations, particularly in the US, have recognized that these factors combined lead to increased problems and are doing a much better job in doing the basic things correctly, he added. "They are really working on improving chick quality, improving their management, improving the brooding conditions."

If medication is needed there are products available that can be used in the feed and/or water. However, MS positive broiler flocks in many cases, if managed correctly, do not need to be medicated.

In broiler flocks raised without antibiotics there has been an increase in infections caused by Gram positive bacteria such as *Clostridium* and *Enterococcus*.

Despite the increased challenges in maintaining bird health in RWA production systems however, Rosales said he is positive about the industry's ability to deal with them.

"If we continue to work in doing the basic management correctly, in doing the good things that we should have always done, we can have great success and be very profitable in new systems of production that require no antibiotics."

Rosales noted that he authored a detailed <u>article</u> on the prevention and control of mycoplasmosis in broiler breeders and broilers that presents the pros and cons of different strategies and emphasizes the importance of biosecurity.<sup>1</sup>

# OPEN THE BENEFITS OF SIMPLIFIED TUNNEL VENTILATION



#### Reducing the Risk of Salmonella Re-Contamination in Feed

April 9, 2020 in PoultryWorld.net by Geert van Houte

Deploying risk mitigation strategies across the feed-to-food production chain can help assure safe animal feed and poultry production. However, certain processes, such as the desiccation (drying out) of salmonella cells, can circumvent routine cleaning and hygiene practices.

#### CDC report urges more vaccination against Salmonella in poultry flocks

May 13, 2020 in PoultryHealthToday.com

Producers have been urged to use more vaccination to control *Salmonella* after a report revealed illnesses linked to certain strains of the pathogen were stalling or in decline.

The Centers for Disease Control and Prevention (CDC) said initial analysis of data on foodborne infections in the US last year — a period which coincided with increase vaccination use by producers — suggests controlling *Salmonella* in live production could play a critical role in reducing the pathogen.

Click here for full article □

### Poultry experts identify weak links in live production that can compromise Salmonella control March 5, 2019 in Poultry Health Today

warch 5, 2019 in <u>Poultry Health Today</u>

Improved Salmonella control requires fixing weak links in live production that allow the pathogen to get into a flock, poultry experts discussed during an industry roundtable.

Click here for full article





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#### The Importance of Reinvestment Through Retrofitting

By MICHAEL IMMING, Senior Loan Officer - AG Division, Live Oak Bank in The Feed, March 2020

Your poultry operation is more than a business; it's your passion, your legacy and your livelihood. To start and maintain this operation, you've used a lot of money, time and energy and by doing so, you've made it successful. The work, however, doesn't end there. As with any business, upgrades are critical to the continued profitability and future options available to your business. But you can't just spend money without a plan. Instead, you need to research the various investment options that will help improve your poultry farm. Let's take a closer look at some of the changes you can make with a reinvestment as well as the reasons you may want to.

#### REINVESTMENT THROUGH RETROFITTING

Retrofitting is the process of adding features and components to your farm that weren't originally there to enhance efficiency and processes. Retrofitting offers many options, all of which can significantly improve the operation of your farm making an impact on your business and finances.

Technology is at the center of many retrofitting projects. New technologies now make it easier to maintain houses and optimize bird production. Some of the technological upgrades that you can make to your farm include adding new feeders, ventilation upgrades, and improved controllers. All of these work to your benefit by helping ensure proper health and nutrition. Not only will this keep you compliant with regulations, but it will also ensure that your birds reach an optimal weight in the shortest amount of time.

#### REINVESTING TO HELP SECURE THE FUTURE

If you choose to sell your farm and retire in the future, reinvesting is crucial. By reinvesting some of your profits in retrofitting, you increase the value of your farm, thereby building wealth for your future. By spending the money on retrofitting today, you ensure that you have a current business in the future - one that is relevant and producing at an efficient rate. The more efficient your business is, the more profit you will make over the long haul.

#### TAX REDUCTION: AN ADDED BENEFIT OF REINVESTMENT

Reinvestment isn't just about building your business and improving operations, it's also about helping to minimize your tax liabilities. Reinvesting benefits your tax situation in several ways. First, it reduces your profits by increasing your expenses, lowering your overall tax responsibilities even while it helps secure your future wealth. But the tax benefits of reinvestment go far more into the future through a process called depreciation. Every year, you get to report equipment and property depreciation as an expense, which lowers your taxes.

continued on next page

#### The Importance of Reinvestment Through Retrofitting (continued from previous page)

When you reinvest in technology that improves your farm and that technology, over time, increases in age and shows the effect of everyday wear and tear, its intrinsic value falls, a process called depreciation. Every year you can offset a portion of your taxable income with that depreciation. Planning for future replacements will help you with your depreciation on future income taxes.

Reinvesting is part of the business ownership cycle. If properly planned and maintained, your farm will continue to grow and produce for years to come. The money you reinvest back into your business will allow for expansion down the road which means you can push your farm into the next century and increase the opportunities that come your way.

There are many ways to gain the capital necessary to reinvest in your farm and to decide what equipment and customization options you should choose. 

□

# Flock Management Tip for Broilers: Monitor Water Consumption to Understand Your Broiler Flock

April 14, 2020 in ThePoultrySite.com by Aviagen

A change in water intake is often one of the first signs of a health or management issue which may result in a drop in performance and/or bird welfare. Water consumption should be recorded using a water meter at the same time every day, so that trends and changes in water consumption can be monitored.

Click here for full article

#### Chickens prefer eating insect larvae meal

May 8, 2020 in PoultryWorld.net

The use of insects as an alternative ingredient in the poultry feed industry is a promising solution to optimize animal production systems worldwide. A study set out to determine whether broilers displayed a preference (or not) for Tenebrio molitor mealworm.

Click here for full article

#### Prepare now for summer heat, humidity

May 5, 2020 in Poultry Health Today By Tom Tabler, PhD

High temperatures and increased humidity during summer months are a dangerous combination for poultry flocks, according to Tom Tabler, PhD, Mississippi State University.

"Now is the time for growers to take precautions that will help birds survive the long, hot days ahead," he writes in an article for *Poultry Health Today*.

Click here for full article

#### Special report: Helping broiler chickens keep their cool

May 8, 2020 in PoultryHealthToday.com

The scorching days of summer are almost here. In this special report, *Poultry Health Today* looks at the impact of heat stress and ways to prevent it.

<u>Click here for full article</u> □

#### **Check Equipment Now to Help Birds Withstand Summer Heat**

May 28, 2020 in <u>PoultryHealthToday.com</u> By Jess Campbell, Jeremiah Davis and Kelly Griggs, National Poultry Technology Center, Auburn University

A common question we're often asked as the summer approaches is "where do we start with getting our houses ready for hot weather to ensure our birds remain as healthy and productive as possible?" A finely tuned house is a good place to start. It can be difficult to manage a hot weather flock when equipment is malfunctioning, so getting houses and equipment working properly allows producers to spend more time growing chickens and less time solving problems. In general, the more attention a grower gives to fine-tune the house to keep the birds comfortable before the heat arrives, the better the flock will perform. With this in mind, following these five best management practices will help keep grower housing and equipment on track — regardless of the age of the house.

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**How much are you paying?** If you are paying significantly more than \$0.87/gal., take a moment and calculate how much extra you will be likely paying this year based on last year's usage figures. *Your integrator isn't going to write you a check for that amount, but you can sure take action and keep it in your pocket!* 

Everyone is encouraged to lock in best price for a year and to *be sure to obtain a delivery guarantee along with it*. To follow Mont Belvieu spot pricing go to <a href="https://ycharts.com/indicators/mont\_belvieu\_propane\_spot\_price">https://ycharts.com/indicators/mont\_belvieu\_propane\_spot\_price</a>.

#### Nearly 60% of US broilers now raised without antibiotics

May 4, 2020 in PoultryHealthToday.com

Almost six in 10 US broilers were raised without antibiotics of any type in 2019 — but that number may have peaked, according to Greg Rennier, PhD, president of Rennier Associates Inc., a company that tracks poultry-health markets in the US.

"We've arrived to the point where we might expect less change in the next couple of years, primarily because full-spectrum production is essentially down to zero," Rennier told *Poultry Health Today*.

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#### Novel techniques make culling male layers obsolete

Apr 24, 2020 Fabian Brockotter, Editor in Chief, PoultryWorld.net

For years there has been heated debate surrounding the killing of male layer chicks immediately after hatching. But with techniques that could determine sex before hatch only available on a lab scale, the debate was going nowhere. Now that these methods are reaching maturity, the situation is changing.

The discussion in society about killing day-old chicks (DOCs) has heightened in Europe in recent years and this is why Switzerland last year banned the gasification and shredding of newborn male chicks, while <u>France</u> and Germany will follow suit by the end of next year. In October 2019, the agriculture ministers of Germany and France announced at the Franco-German Council of Ministers in Toulouse that the killing of male chicks would be banned by the end of 2021. At the time they wanted to mobilize players in the poultry industry to accelerate the development and implementation of sustainable alternatives to the culling of freshly hatched chicks. Pressure was also building in the Netherlands. 4 animal welfare organizations asked the Prime Minister to follow France and Switzerland's lead and implement a Dutch ban in 2021.

#### Split timeframe for male cull ban

Animal welfare organizations have been asking for a ban for years. Since the earliest stages in the development of procedures that could tell if a fertilized egg would produce a male or a female bird, they have been putting pressure on both the poultry industry and legislators. They even had a Plan B in the event that sex determination techniques were not successful, which involved the breeding of dual purpose birds or even raising male layers to slaughter age regardless of the expense.

The poultry sector, however, was moving at a totally different speed. With the culling of DOCs having been common practice for many years, not illegal in any state and with no viable alternative to hand, most of the sector was not really interested. Having said that, more visionary industry professionals could see in which direction the debate was moving. Realizing that a technique would become available at some point in time, they embraced the idea and teamed up with research and development institutes at various universities. One of them, Friedrich-Otto Ripke, chairman of the Zentralverband der Deutschen Geflügelwirtschaft (ZDG), said in 2018, "We are fully aware we have to stop the culling of male layers as soon as possible. It is our industry's biggest ethical issue by far." Others, like the Seleggt consortium of Hatchtech, Rewe and the university of Leipzig took up the challenge and began developing a method, machine and marketing concept for producing brotherless laying hens.

#### From theory to reality

It was the hands-on approach of Seleggt that resulted in the first big breakthrough. Using a prototype of their concept and with German retailer Rewe on board, they were the first to have commercially available consumption eggs on supermarket shelves, produced with no male layers hatched. After almost a decade of research, the first eggs were sold in 2018 in nine supermarkets in the Berlin area. Since then they have rapidly expanded to 200 Rewe stores and those of its discount brand, Penny. In 2019 Penny was offering the eggs nationwide and other supermarkets soon followed. In Germany Edeka, Marktkauf and Famila sell the brotherless eggs, while a growing number of France's Carrefour supermarkets now has them, and since March 2020 the Netherland's second largest supermarket chain Jumbo has signed up for them.

The technical implementation of the sex determination procedure and its associated patents are held by the Seleggt consortium. The sex determination takes place on the 9th day of the hatching process. A small hole is made in the egg using a fine laser beam. A drop of fluid is then extracted with a needle. The sex determination is based on hormones found in the urine of the embryo. The color of a marker fluid indicates whether the embryo is male or female. This analysis takes approximately half an hour. During that time the hatching eggs are 'on hold'. The eggs are first candled before the technique is applied. The analysis is only performed on 'living' embryos. "The analysis takes place around the 9th day of incubation because the embryos do not yet have a 'conscious pain experience' at that point," explains Martijn Haarman, director of both Seleggt and Respeggt.

"The eggs with a female embryo are placed back into the incubator, the male eggs are then removed and processed into animal feed raw material. Seleggt has an agreement with Schaffelaarbos in Barneveld for this. Seleggt produces the brotherless laying hens in Barneveld in the former Reemst Hatchery where between 20,000 and 40,000 hen chickens can be hatched every week. With the demand for brotherless eggs growing, Seleggt can install the analysis technique in other hatcheries as well. "Seleggt is working on the further development of the technology," says Haarman. "It is still relatively labor intensive. The eggs containing male embryos are selected automatically but the eggs with female embryos have to be put back in the setter trays by hand. Naturally, we want to reduce the amount of manual work by using robot technology, and that is currently in development."

#### Smart egg marketing

It will come as no surprise that sex determination comes at a cost. In theory the cost is added in the hatchery, making the hen more expensive to the farmer/integration. The cost burden is not in the value chain, however. Because it is society that demands a ban on culling male layer DOCs, it is the consumer that pays. A subsidiary of Seleggt, called Respeggt, markets the eggs and manages the production chain. The eggs cost 2 cents extra, paid by the end consumer and all traced and monitored with blockchain technology. Stamping the eggs with a Respeggt logo and marketing the added value 'without chicken deaths', the additional costs can be recouped.

continued on next page

#### **Novel techniques make culling male layers obsolete** (continued from previous page)

#### Using cameras in egg sexing

A second method for determining the sex of chicks in the hatching egg became available in December 2019. The largest French supermarket chain Carrefour has made agreements with chicken supplier Loué to stop the culling of male DOCs. To achieve this, Loué will be installing German sex-determining machines in its hatcheries and Carrefour will increase the retail price for the eggs subsequently delivered. The parties will use technology from the German company AAT, part of the EW Group, which also includes Lohmann Tierzucht. The technology used for the Carrefour eggs uses spectrophotometry, or cameras, to determine the sex of the embryos before they are hatched. AAT's technology was first introduced in France in December. According to Carrefour, 30,000 eggs should benefit from this technology by 1 May. The supermarket currently charges € 1.78 for six eggs from Loué, but from May 1 the price will rise to € 1.94 per half dozen.

#### Fluorescence microscopy in egg sexing

More news from Germany came at the beginning of 2020. Researchers at the Institut für Industrielle Informationstechnik of the Technische Hochschule Ostwestfalen-Lippe in Lemgo and the Hochschule Coburg have applied for another patent for a new method to determine the sex of chicks in the egg. This method uses 'fluorescence microscopy' in which a tiny hole is drilled in the egg shell and the contents of the egg are zapped with a laser. According to the researchers, the sex of a chicken embryo can be established as early as day 3 of incubation, with a 75% chance of getting it right. The success rate at day 6 is 95%. The university is currently working on achieving even greater accuracy and expects the technique to be ready ahead of the 2021 deadline set by agriculture minister Julia Klöckner to end the culling of male layer chicks. With these three novel techniques, culling the brothers of laying hens will become obsolete. The introduction of a cull-free egg proves that an ethical dilemma can be eliminated through responsible innovation when research, industry and retail work hand-in-hand.  $\square$ 

#### **Study compares 4 Dutch broiler production systems**

May 15, 2020 from PoultryWorld.net

Animal welfare gets a lot of attention in the Netherlands, and for broiler chickens, stocking density and broiler growth rate are discussed in depth. Several alternative broiler production systems have been developed. A study set out to compare 4 systems. For each production system the production costs and revenue are calculated.

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#### **Aviagen: Hitting the Chick Yield Target**

The process of converting a fertile hatching egg into a chick is dependent on getting several key factors right. Like some other of the incubation essentials (especially embryo temperature and moisture loss to 18 days), chick yield is something of a Goldilocks trait - the chicks should not be too dry, nor too wet but just right. Chick yield is driven not only by incubation humidity but also by elapsed time in the incubator and it is important to remember that when considering the optimal chick yield for an operation, because chick yield doesn't only indicate hydration status, but also maturity. When chasing chick quality, both are important, and it is counterproductive to chase higher levels of hydration while sacrificing maturity.

#### **New Poultry Disease Phone App to Help Farmers**

March 26, 2020 in WattAgNet.com by Mark Clements

Poultry farmers in Southeast Asia are now benefiting from a new phone app that can help them to recognize and manage infectious diseases. Although the app was developed with the Philippines in particular in mind, its developers note that it is applicable to any country, although some of the diseases listed will be rare in more developed industries. The app, The Pocket Guide for Poultry Diseases, offers poultry producers useful tips on how to maintain a healthy population of chickens along with information on flock management and disease detection.

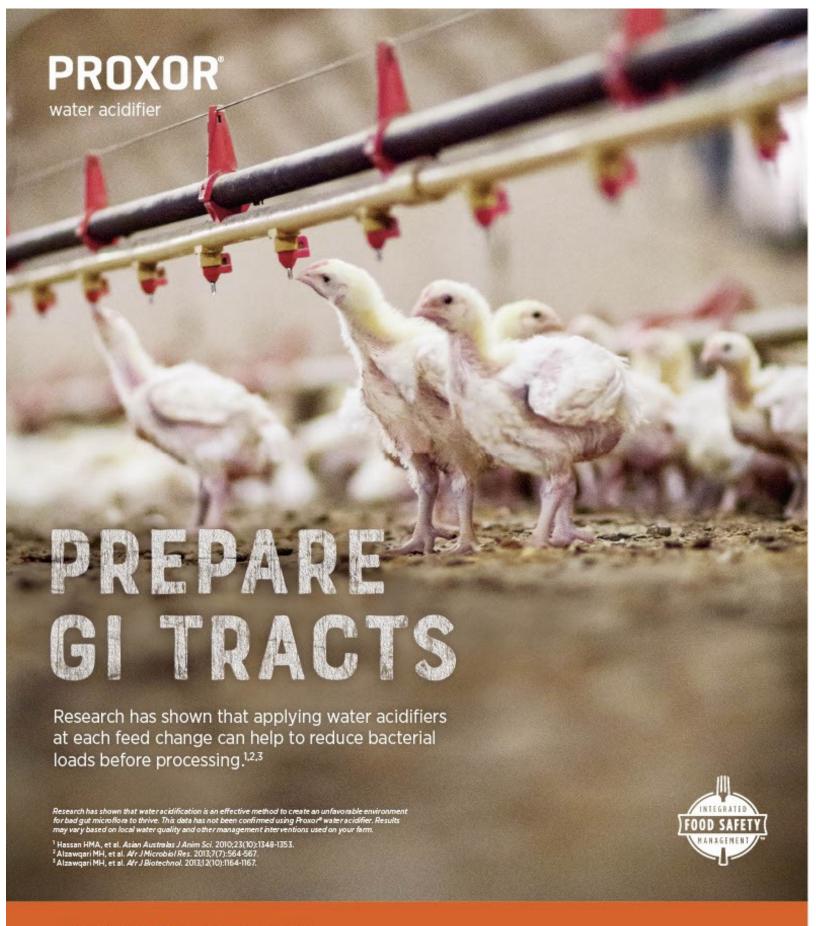
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#### Researchers identify gene to improve hen bone health

By Jackie Linden on March 24, 2020 in WattAqNet.com

A multinational group of scientists has discovered a gene that could be key to improving the health and well-being of laying hens.

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#### Report says U.S. is failing food safety 101; incidence of illnesses still increasing

By Coral Beach on May 01, 2020 12:06 am in FoodSafetyNews.us

Attempts to reduce food poisoning are failing as the U.S. incidence of foodborne illnesses continues to increase. Infections from five of eight pathogens tracked by the CDC are on the rise. Initial analysis of data comparing the period from 2016-2018 with numbers for 2019 (see table below) shows that the federal government's Healthy People 2020 targets for reducing foodborne illness will not be met, according to the Morbidity and Mortality Weekly Report (MMWR) published by the Centers for Disease Control and Prevention.

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#### Chicken-related foodborne illnesses on the rise in the US

May 13, 2020 in WattAgNet.com by Elizabeth Doughman

The spread of foodborne pathogens continues to climb – and chicken is one of the biggest culprits in transmission, reports the Centers for Disease Control and Prevention (CDC).

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#### Food Labels, Even Redundant Ones, Matter to Consumers

March 5, 2020 in WattAqNet.com by Elizabeth Doughman

Consumers are willing to pay a premium for chicken that is labeled hormone-free, even if they know the food label is superfluous, says Jason L. Lusk, a distinguished professor and head in the Department of Agricultural Economics at Purdue University. Shoppers put a lot of value in package or food label claims. For poultry products, the label hormone-free continues to attract a lot of attention. However, the claim is unnecessary. The U.S. Department of Agriculture requires that all poultry raised for food be hormone-free.

Click here for full article □

#### Long-term pandemic effects on food industry still unknown

04/23/2020 in MeatPoultry.com by Jay Sjerven

Jayson Lusk, PhD, head of the department of agricultural economics at Purdue University, suggested the coronavirus (COVID-19) pandemic may bring about significant changes not only to how consumers buy their food but even to the ways that food is processed and distributed. Lusk presented his observations during an April 22 webinar sponsored by farmdoc, an online information service for agriculture operated by the University of Illinois-Urbana Champaign.

#### Reducing contamination of carcasses during defeathering

May 2020 in WattPoultryUSA by ME Berrang, et al.

Applying an acidic solution to the cloaca of broiler carcasses before picking can significantly reduce Campylobacter contamination, according to a recent study by the U.S. Department of Agriculture Agricultural Research Service.

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#### **Discharge Permits Could Impact Poultry Facilities**

March 4, 2020 by Anissa Lopez on WMDT.com

Maryland legislation that aims to expand and put more regulations on discharge permits for poultry houses in the state is working its way through both the House and Senate. House Bill 1312 and Senate Bill 841 would prohibit the Department of the Environment from issuing certain discharge permits for new and existing industrial poultry operations to cut down on water pollution from poultry houses.

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#### Podcast: How PAACO certifies animal care and welfare

March 6, 2020 by Kimberlie Clyma in MeatPoultry.com

Collette Kaster explains the role the group plays in making the meat industry better.

Click here for full article

#### FFAR Announces Six SMART Broiler Winners, in Partnership with McDonald's

Prize winners are developing tools to enhance broiler chicken welfare

WASHINGTON (March 16, 2020) – The Foundation for Food and Agriculture Research (FFAR) announced the six SMART Broiler Phase I winners today, a program developed in partnership with McDonald's. SMART Broiler is a research initiative that is awarding more than \$4 million in grants and technical support to develop automated monitoring tools that precisely assess broiler chicken welfare. The Phase I winners collectively received \$2,092,439 in funding from FFAR and McDonald's, with the potential to receive additional funding in Phase II.

Current methods for assessing broiler chicken welfare on-farm rely on human observation and subjective scoring. SMART Broiler is developing automated Sensors, Monitoring, Analysis and Reporting Technologies (SMART) to objectively and comprehensively assess broiler welfare worldwide. These tools have the potential to enhance welfare for 9 billion birds annually in the US and improve efficiency for producers.

"FFAR is impressed by the caliber of the more than 40 SMART Broiler proposals we received from 11 countries, which underscores the global importance of this issue," said FFAR's Executive Director. "Producers and consumers alike are eager to address animal welfare concerns. This initiative seeks to remedy these concerns by developing technologies that provide consistent, timely and accurate welfare assessments on farms around the world."

This initiative is divided into two phases. Phase I provides funds for early development and testing of technologies. Phase II refines and validates the most promising technologies from Phase I. FFAR anticipates granting additional awards for Phase II, which will likely be announced in late 2021.

Hao Gan with the University of Tennessee Institute of Agriculture, in partnership with Mississippi State University and USDA-ARS and BioRICS NV, is receiving \$350,000, with additional support provided by the University of Tennessee AgResearch and Peco Foods for a total \$513,214 award. Gan is using multiangle and multi-range cameras to monitor commercial broilers at both individual and flock levels and measure their walking ability and level of activity.





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#### Poultry processing tech: The art of deboning

April 7, 2020 by Keith Loria in MeatPoultry.com

As demand for boneless poultry products continues to rise, poultry plants are investing in deboning systems at higher levels to improve performance and efficiency. The growing demand has pushed the industry to catch up fast and develop newer and more innovative automation technology.

Today's deboning systems are more precise, faster and flexible with flock variation and a range of carcass sizes.

Roy Driessen, industry marketing manager of poultry at Marel, with US operations in Lenexa, Kansas, says there are two trends heavily influencing poultry deboning. For starters, slow-growing broilers are gaining ground in various parts of the world.

"As these broilers are more expensive, improving carcass balance is a key challenge for the entire poultry industry," he says. "Ethically and economically, it would be irresponsible to just process a few parts of the broiler (breast and wings) and put the other parts in a box for export against a small price. An improved carcass balance means that more parts of the broiler, such as thighs and drumsticks, will be upgraded by deboning them."

Furthermore, he shares, deboning technologies must also take into account the different anatomy of slow-growing broilers. When processing different breeds on one line, adjustment of equipment settings should be easy, preferably data-driven. Specific poultry production control software connects all machines in the line and is, as a result of early grading, able to adjust deboning settings timely and automatically to the upcoming flock.

The second trend is the scarcity of human workforce around the world. Poultry processors see no other option than to automate all operations which previously were done manually.

"Of course, this goes for deboning operations too. However, most deboning systems still require manual shackling of the products to the line, which means a lot of human workforce," Driessen says. "Only the most advanced deboning solutions operate fully in-line, without needing manual intervention."

In addition to this, there is an increasingly strong need for retail quality products. This means that product presentation of deboned products must be nearly perfect. Most deboning systems require some trimming workforce after deboning. Only the latest advanced in-line solutions can do without manual trimming operations afterward.

Whole legs and thighs are popular with consumers, which means equipment to help processors debone these cuts is essential. Source: Baader Poultry USA

Scott Hazenbroek, president of **Foodmate US Inc.**, based in Ground, Georgia, notes robotics and automation are the main trends in poultry technology due to their potential to reduce labor, which is a significant challenge for most clients.

"Machines are taking over the work, and it's not a choice; it's a necessity. Since the market is forced to automate, there are many machines available that are not meeting the same quality and results of a manually deboned piece of meat," he explains. "We saw and seized the opportunity by building the most robust and efficient deboning systems on the market by introducing intelligent deboning machines."

Foodmate recently developed a built-in X-ray measurement system in its whole leg and thigh deboners; it gathers data and makes real-time automatic adjustments to the size and weight variance that is inherent to a product like chicken.

Food safety is also another critical concern in the industry, so an emphasis on the further development of materials with antimicrobial and/or heat dissipation properties are expected.

Oliver Hahn, CEO of Baader Poultry USA, Kansas City, Kansas, says the automation of dark meat (whole legs and thighs) deboning has gained popularity.

"Poultry processors are not willing to sacrifice final product quality and yield in order to move to automation," he says. "Additionally, processors still struggle for the ideal solution to debone big birds automatically. Baader innovates our new technology to combat these challenges."

Sid Adkins, vice president of sales, marketing and service operations at Gainesville, Georgia-based Cantrell-Gainco Group, notes the latest advancements are in the precise and accurate measurement of individual birds and pieces to make accurate cuts.

"Vision systems, including X-ray systems, are now being used to find joints to make precise cuts," he says. "Our research has shown that bird weight alone is not a good enough measure to calculate an accurate shoulder width to then do high-yield deboning. Some systems are also using cameras and sensors to increase yield in deboning operations."

#### Innovative technology

Hahn notes advancements in electrical components allow the company to measure each individual bird and automatically adjust the cutting paths.

"We now have the technology to make cutting movements significantly faster than in years previous," he says. "The reaction times that control mechanical functions are more accurate and produce higher yields."

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#### **Poultry processing tech: The art of deboning** (continued from previous page)

For instance, the Baader 656 Breast Deboner processes front halves with or without wings attached. Hahn explains workers place front halves onto a holding device that positions and clamps them in place, then the bird moves through a series of automated processes to remove the meat from the carcass. Each individual front half is measured and subsequent cutting and scraping tools adjust accordingly to ensure maximum yield with minimum bone content.

The Baader 632 Thigh Filleting System is integrated into the Baader ProFlex Cut Up line. According to Hahn, as the cut-up line produces whole legs, they remain in the shackle and proceed to the thigh deboner, eliminating the need to manually rehang.

"It uses a series of blades to score the joint between the drumstick and thigh," Hahn says. "The joint is captured in the machine, where it is held throughout the deboning process. Automatic meat pullers start at the knee and pull the meat down the thighbone, ending at the hip. The boneless meat is removed from the hip joint and the drumsticks remain in the shackle exiting the machine."

The Thigh Fillet System can process up to 230 individual boneless, skinless thighs per minute, with a majority of those going straight to X-ray and packaging without any human intervention.

Cantrell-Gainco Group has partnered with Mayekawa to offer best-in-class deboning equipment.

"Mayekawa systems can be configured to process 200 legs per minute and offer the highest deboning yields in the industry," Adkins says. "An important benefit of Mayekawa Toridas whole leg deboning systems is that if one of the deboning modules is taken offline, the other modules can continue deboning operations, so there is no system downtime."

For decades, Marel has been developing high-tech systems for breast and leg deboning, always with an eye for innovation and ease-of -use, to add maximum value for their customers.

"This is well illustrated by Marel's Thigh Fillet System, which harvests retail quality thigh fillets and makes use of unique deboning techniques," Driessen says. "But first of all, before operations are executed, the positioning of the leg in the machine is crucial to the success of thigh deboning."

It is the job of the Thigh Fillet System to ensure the quality of the anatomic legs supplied, including the extra harvested oyster, is preserved throughout the deboning process. That's why bone handling is very gentle.

"Pushing too hard to get the bone out could mean the loss of a carefully harvested oyster and thus a loss of quality, which is exactly what Marel is trying to prevent," Driessen explains. "In a carrousel machine, the actual deboning takes place. While its meat is being scraped off, the thigh bone isn't subjected to excessive forces. Instead, the system works by pushing and pulling, a unique solution. The chance of broken bones or bone splintering is reduced to an absolute minimum, as no big pressure is put on the thigh, not in any stage of the process."



Thigh deboning equipment helps save proessors times and money in the long run. Source: Marel

#### **Poultry processing tech: The art of deboning** (continued from previous page)

#### A look to the future

Industry insiders still believe a lot of innovation and advancement will come in the years ahead. Hahn foresees deboning technology to increase speeds without losing accuracy, quality and yield, while Hazenbroek projects fast and significant improvement coming in the areas of robotics and intelligent automation.

In the deboning department, Driessen notes software is gaining importance all the time.

"Sensors along the system determine the timing of operations, such as the start and stop times of a cutting blade," he says. "The role of such sensors (and the software behind them) will be extended in the future, as they can gather plenty of data from the products passing by. This will include optical scans with cameras, lasers and X-rays to improve the determination of quality, size and weight on an individual level so that machines and robots can adapt even better to each particular product."

Part of this data-driven processing will also be the communication with upstream and downstream machinery. Consequently, Driessen says, equipment can be monitored in real-time and adjusted on the spot.

"A performance drop can be displayed immediately on the screens of the control room, together with its cause and its possible solution," he says. "This kind of analysis gives plant management the opportunity to continuously improve process effectiveness. Eventually, the last operative tasks performed manually will also be automated, so that the human contribution in the processing plant will be restricted to a controlling role."

"Looking to the future, more sophisticated application of robotics and improved measurement may improve deboning operations even further than they are today, but it will likely be in small, incremental ways," Adkins says. "We've made great strides already."

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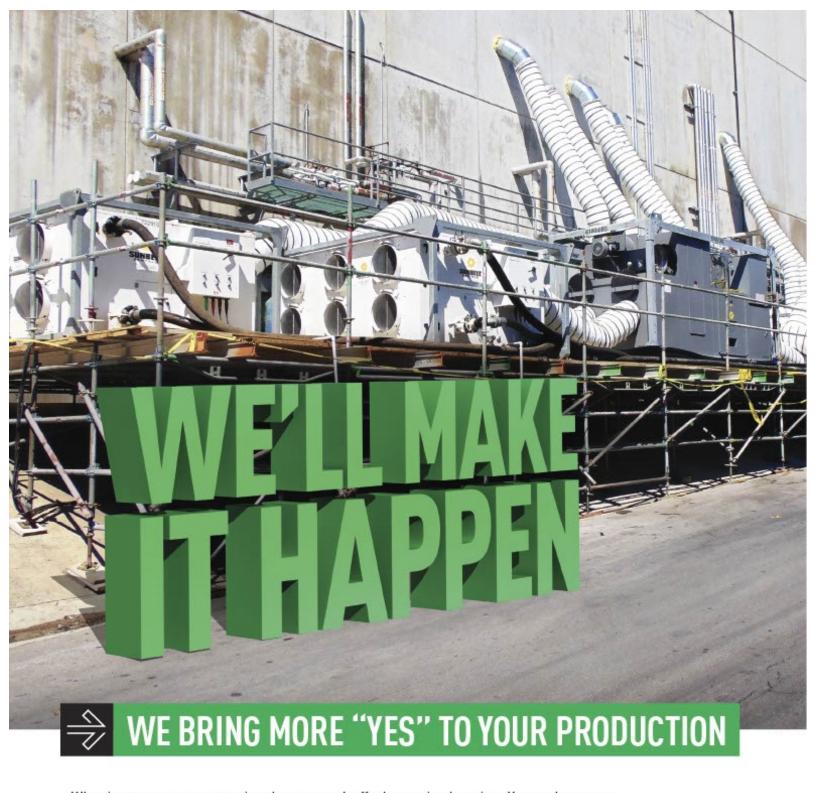
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#### **Population Growth Trends Seem to Favor Poultry**

April 13, 2020 in WattAtNet.com by Roy Graber

As the U.S. agrifood industry looks at how it can feed a growing global population, the long-term opportunities might be the best for the broiler and turkey industries.

Click here for full article □

# New Research Shows U.S. Pet Food Manufacturers Feed America's Pets and Agricultural Economy, Reduce Food Waste

WASHINGTON, DC – First-of-its-kind research finds that U.S. pet food manufacturers not only provide balanced, safe meals for America's dogs and cats, but also stimulate the overall agricultural economy through the purchase of ingredients, labor and services from related industries. The Institute for Feed Education and Research (IFEEDER), North American Renderers Association (NARA) and Pet Food Institute (PFI) released a new, jointly funded report today detailing the purchasing power of the \$30 billion pet food industry and its economic implications for U.S. agriculture and rural communities. The report also includes an in-depth review of the diverse ingredients most commonly included in dog or cat food. The full report is available online at ifeeder.org.

### Aviagen: Separate-Sex Feeding Equipment Helps to Control Body-Weight Gain and Uniformity March 12, 2020 in ThePoultrySite.com

This is the fifth part of a 'Flock Management Tips' series presented by Aviagen. Separate-sex feeding considers the differences in head size and height between males and females and allows for more effective control of body-weight gain and uniformity in each sex.

# Oklahoma joins pushback against California Prop. 12

March 12, 2020 by Erica Shaffer in MeatPoultry.com

Attorney General Mike Hunter has filed a brief arguing the law is unconstitutional.

<u>Click here for full article</u> □

#### **State Legislatures Advance Cage-Free Bans**

March 13, 2020 by Jacqui Fatka in FeedStuffs.com

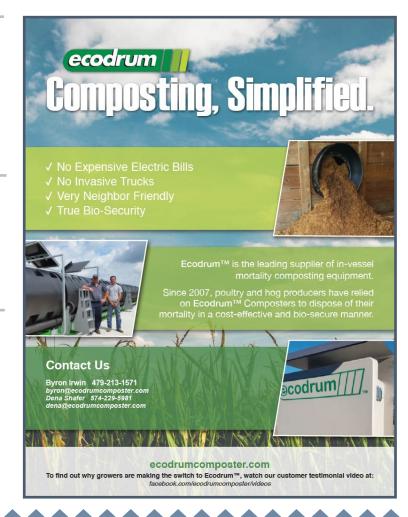
Arizona, Hawaii, Maine and Colorado are all taking actions to require cage free housing systems for egg production.

Click here for full article □

# Mitloehner clears the air on fossil fuels, cattle & climate change

May 26, 2020 By Amanda Radke in <u>BeefDaily.com</u>

As the air clears over major urban areas, it offers an opportunity to clear the air on common misconceptions about greenhouse gasses and animal agriculture.



#### Meat sector implicated by climate and alternative proteins

Mar 16, 2020 by Tony McDougal in PoultryWorld.net

A new financial modelling on climate change has revealed that billions of dollars are at risk in the meat sector. Work carried out by the \$20 trillion investor network FAIRR looked at the "twin forces" of increasing climate costs and alternative protein growth will impact the profitability of meat companies in a 2C world.

The study looked at 5 major firms, which all produce substantial quantities of poultry products – Tyson Foods (US), Maple Leaf Foods (Canada) and JBS, BRF and Minerva (Brazil) - suppliers to global companies such as McDonalds and Walmart, as well as the wider animal protein sector.

Headline results showed that only 2 out of 43 companies studied (Tyson and Marfrig) had undertaken a climate "scenario analysis", while alternative proteins will take at least 16% of the total meat market by 2050, potentially rising up to 62%.

The Coller FAIRR Climate Risk Tool provides investors with an online model to help quantify potential risks and opportunities for meat companies in a scenario of 2°C of global warming. It identifies 7 key risks that will impact the profitability of the meat sector in the IPCC's scenario of a 2°C warmer world in 2050. Risks include:

- Increased cost of electricity due to carbon pricing
- Higher costs of feed due to poor crop yields
- Increased mortality due to heat stress

Jeremy Coller, FAIRR founder and chief investment officer at Coller Capital, said: "Climate change is real and so are its financial impacts. The cost of powering poultry sheds, of sourcing feed for livestock and veterinary care will all rise as global temperatures do.

"Investors can see the inescapable truth for the meat sector is that it must adapt to climate change or face ruin in the years ahead. Conversely, there is also an appetizing prospect of enormous upside if the world's meat companies shift their protein mix to align with a climate-friendly path."

The Climate Risk Tool identifies 3 climate pathways for animal protein companies to take, which will define the extent of their opportunity or risk. A climate progressive pathway would see companies growing alternative proteins faster and shifting feed and livestock mix towards less climate-influence crops and species in 2050.

The report says that substituting beef for lower carbon-intensive species, such as poultry, was an option, but there are offsetting tradeoffs, including higher electricity and energy costs and volatile feed costs. Pivoting towards alternative proteins is the most climate friendly 

#### **Weekly Broiler Production and Prices**

May 22, 2020 from Chick-News.com

#### **Chick Placements**

The Broiler Hatchery Report released on May 20th 2020 confirmed that a total of 231.4 million eggs were set during the week ending May 16th 2020, two percent lower than the corresponding week in 2019 and 0.9 percent more than the previous week. A total of 161.4 million day-old chicks were placed among the 19 major broiler-producing states during the week ending May 16th 2020. This was ten percent less than in the corresponding week in 2019 and 4.0 percent less than the previous week. Total chick placements for the U.S. amounted to 170.4 million, eight percent less than the corresponding week in 2019. Claimed average hatchability was 80.2 percent for eggs set three weeks earlier compared to 78.8 percent in the previous week. Cumulative placements for January 4th through May 16th 2002 amounted to 3.70 billion chicks, down less than one percent from the corresponding period in 2019.

#### **Broiler Production**

According to the May 22nd 2020 USDA Broiler Market News Report (Vol. 67: No. 21) for the processing week ending May 16th 2020, 160.6 million broilers were processed during the past processing week (last week 163.0 million) at an average live weight of 6.42 lbs. (6.37 lbs. last week) and a nominal yield of 76.0 percent. The number of broilers processed was 3.9 percent less than the corresponding processing week in 2019. Processed (RTC) broiler production for the week was 783.6 million lbs. (356,177 metric tons), (788.9 million lbs. last week) 0.6 percent more than the corresponding processing week in 2019. For YTD 2020 Processed (RTC) production attained 15,736 million lbs. (7,152,501 metric tons), 4.4 percent more than YTD 2019.

#### **Broiler Prices**

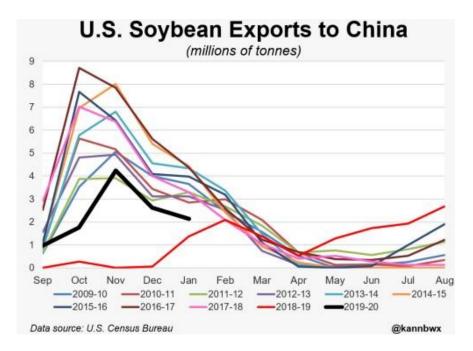
The USDA National Composite Weighted Wholesale price on May 22nd 2020 was down 3.0 cents per lb. from the previous week to 74.5 cents per lb. compared to 101.0 cents per lb. during the corresponding week of 2019; 53.5 cents per lb. for April 2020 and 112 cents per lb. for the three-year average. The USDA Composite price has stabilized after moving up 25 cents per lb. from a 52.7 cents per lb. bottom during the last week of April. The decline over the three previous consecutive weeks was attributed to the collapse of the food service segment following imposition of COVID-19 restrictions.

Click here for full article

#### **COMMODITY REPORT**

May 22, 2020 in Chick-News.com

- The financial and economic implications of the COVID-19 pandemic are becoming more apparent in the U.S. economy. Corn and soybeans both decreased slightly in price this past week. Corn futures for July delivery were lower by 0.6 percent compared with the quotation on May 15th. Soybeans were 0.2 percent lower compared with the May 15th quotation for July delivery. Anticipated increases in price have not materialized after signing the Phase-One trade agreement with China or following ratification of the USMCA.
- Prospects for commodity exports to China are apparently still restrained but less by the logistic restrictions imposed by the last phases of the COVID-19 outbreak. China has reduced their short-term demand for soybeans as a result of continuing losses from African swine fever and disruption of poultry production that is now recovering. Soybeans from Brazil are priced more competitively than from the U.S. due to availability and a favorable currency exchange. The USDA projects that 1.8 billion bushels of soybeans will be imported by China from Brazil in 2020. The U.S. hopes to commence shipping in quantity during late summer.



#### Uncertainties still include:

- The extent and timing of soybean purchases by China in 2020. The U.S China Phase-One agreement signed in mid-January incorporating U.S. tariff rescissions, promised purchases of agricultural commodities, concessions on some structural issues by China and strengthened enforcement provisions. A telephone meeting between senior officials of the U.S. and China on Friday May 8th resulted in a reassurance that China would fulfill its obligations with respect to imports of U.S agricultural products. Both sides accepted the need to improve relations damaged by recent injudicious rhetoric relating to the origin of COVID-19.
- It is anticipated that China will take advantage of low world prices for commodities to import 20 million tons of corn (787 million bushels) and 10 million tons of soybeans (365 million bushels) to add to reserves. The U.S. expects to supply part of this requirement
- Imports of soybeans from Brazil were delayed by inclement weather and port disruptions during the first quarter of 2020, resulting
  in soybean stocks falling to a multiple-year low. Imported consignments increased stocks to 4.26 million tons (157 million bushels),
  up 28.7 percent from March 2020.
- The market is now more accepting of the reality that future shipments of soybeans to China will not take place according to the quantities promised by the Administration after signing the Phase-One agreement.
- Total world soybean shipments from the U.S. in 2020 YTD have amounted to 5.26 million tons, (193 million bushels), approximately
   9.3 percent of the quantity required to meet the May USDA WASDE projection of 2.055 billion bushels. Through March 2020 soybean shipments attained an average of 16.5 million bushels per week compared to a quantity of 30.3 million bushels (1,102 million metric tons) per week to meet the projected export target.
- Domestic U.S. soybean and soybean meal demand is currently constrained by cutbacks in the intensive livestock and poultry sectors as impacted by COVID-19.
- Justifiable uncertainty exists regarding the spread of COVID-19 to other Asian nations, Europe and North America with the potential to create a worldwide depression as economic activity is curtailed.

continued on next page

#### **COMMODITY REPORT** (continued from previous page)

Questions still exist:

- The optimistic projections for planting corn and soybeans in 2020 as published on March 31st by the USDA are materializing.
   Planting is advancing at a rapid pace.
- A U.S. trade agreement with the U.K. should be concluded in 2020 but trade with the U.S. will be conditioned by commitments to
  the E.U. by the departing nation. Negotiations commenced this past week between Amb. Robert Lighthizer and his U.K.
  counterpart Minister Elizabeth Truss. A bilateral agreement will have to overcome disagreements over the use of Huawei
  communications equipment by the U.K. and chlorination applied to process U.S. chicken.

Compared with the May 15th 2020 close, the CME quotation for July corn posted at 15H00 on May 22nd was down by 2cents per bushel to 317 cents. China purchased 567,000 tons of corn on Friday 3rd April valued at \$73 million. This quantity represented 1.3 percent of projected U.S. corn exports in 2020. The social restrictions imposed as a result of COVID-19 will reduce ethanol demand by 1.5 billion gallons or 10 percent of projected 2020 addition to gasoline. Forty percent of U.S. ethanol fermentation capacity is off-line at present.

July soybeans, expected to be the beneficiary of the Phase-One agreement, were down 2 cents per bushel to 838 cents, continuing to accumulate losses over the past month.

Over the past 10 weeks China has purchased 1.19 million metric tons (47.6 million bu.) of corn and 1.6 million metric tons (509.3 million bu.) of soybeans with an additional order of 0.73 million metric tons, (27 million bu.) placed in mid-May. Normally China purchases U.S. soybeans in the second half of each marketing year ending in August.

For consecutive years 2017 through 2019 the U.S. supplied 34.4 percent of soybean requirements for China amounting to 95.5 million metric tons. This was followed by a decline to 16.9 percent of 88.5 million metric tons in 2018 and 16.6 percent of 88.0 million metric tons in 2019.

The following extracts from the March 31st 2020 edition of the USDA *Grain Stocks Report* indicate the levels of storage on farms and in fields and off-farm for corn and soybeans.

- Corn stored in all positions on March 1st, 2020 totaled 7.95 billion bushels, down 7.7 percent from March 1st of the total stocks, 4.45 billion bushels are stored on farms, down 13.3 percent from a year earlier. Off-farm stocks, at 3.50 billion bushels, are up 0.5 percent from a year ago. The December 2019 through February 2020 data indicated disappearance at 3.45 billion bushels, compared with 3.32 billion bushels during the same period last year.
- Soybeans stored in all positions on March 1st 2019 totaled 2.25 billion bushels, down 17.4 percent from March 1st. Soybean stocks stored on farms totaled 1.01 billion bushels, down 20.3 percent from a year ago. Off-farm stocks, at 1.24 billion bushels, are down 14.8 percent from March 1st 2019. Indicated disappearance for December 2019 through February 2020 totaled 1.00 billion bushels, down one percent from the same period a year earlier.

The May 12th WASDE projected the 2020 harvest for corn from 89.6 million acres and from 82.8 million acres for soybeans. These values were lower than the projections developed before the advent of COVID-19.

The following quotations for July delivery were posted by the CME at 15H00 on May 22nd 2020 compared with values posted on May 15th 2020 (in parentheses) reflecting specified months for delivery.

#### **COMMODITY**

 Corn (cents per bushel)
 July 317 (319)
 Sept. 322 (322)

 Soybeans (cents per bushel)
 July 835 (837)
 Sept. 838 (840)

 Soybean meal (\$ per ton)
 July 284 (287)
 Sept. 288 (290)

Changes in the price of corn, soybeans and soybean meal over five trading days this past week were:-

#### **COMMODITY CHANGE FROM PAST WEEK**

Corn: July quotation down 2 cents per bushel (-0.6 percent)
Soybeans: July quotation down 2 cents per bushel (-0.2 percent)
Soybean Meal: July quotation down \$3 per ton (-1.1 percent)

A current shortage of meat and bone meal is due to reduced processing of pork and beef. Prices for this ingredient for Minneapolis delivery fell to \$310 per ton on May 13th compared to \$350 per ton a week previously. On May 14th 2019 meat and bone meal was priced at \$180 per ton. Depending on location and availability the rise in price of meat and bone meal could add \$5 to \$10 per ton to layer-hen diets due to escalation and higher inclusion of synthetic amino acids.

continued on next page

#### **COMMODITY REPORT** (continued from previous page)

An increase of \$7.50 in the cost of reformulated diets represents 1.3 cents per dozen in production cost. The cost of meat and bone meal should decline as packing plants resume operation. The production of meat and bone meal from euthanized whole hogs will require adjustment of ingredient matrices depending on source.

• For each 10 cent per bushel change in corn:

The cost of egg production would change by 0.45 cent per dozen

The cost of broiler production would change by 0.25 cent per pound live weight

• For each \$10 per ton change in the price of soybean meal:

The cost of egg production would change by 0.44 cent per dozen

The cost of broiler production would change by 0.25 cent per pound live weight

#### **COMMENTS**

Subscribers are referred to the May 12th WASDE #600 under the Statistics TAB.

USDA Chief Economist Robert Johansson speaking at the 96th *Agricultural Outlook Forum* indicated that U.S. agricultural commodities to the value of \$14 billion would be imported by China in 2020, far short of the \$40 to \$50 billion per year promised by the White House in terms of the Phase-One Agreement. In the light of decreased demand in China due to COVID-19, purchases from Brazil and port congestion, now easing, the volumes suggested by Dr. Johansen may be optimistic. In an April 3rd interview Johansson noted that the Administration target of \$40 billion "is still feasible"

More recently Dr. Joe Glauber of the International Food Research Institute and formerly a USDA economist for 30 years, expressed the view that China would not comply with obligations under the Phase One Agreement. Imports of U.S. commodities amounted to \$5 billion in the first quarter of 2020, comprising pork, cotton, corn and wheat. The volume of commodities delivered would have to increase to \$10 billion for each of the succeeding quarters to attain the promised \$36.5 billion for the current year. Dr. Glauber anticipates that China will fail to meet the 2017 baseline of \$24 billion. Escalating tensions with China over COVID-19 will not promote exports to that Nation.

During 2018 and 2019 a total of \$28 billion was disbursed to the agricultural sector in Market Facilitation Program (MFP) payments. Additional requests are being made by industry groups for 2020 MFP relief and these may be justified by delayed or anticipated lower imports by China. President Donald Trump stated in late February 2020 that the Federal Government would "provide additional aid to U.S. farmers as needed until recently negotiated trade deals with China, Mexico, Canada and other countries fully kick in". At least one round of 2020 MFP payments or their equivalent amounting to \$15.5 billion to producers would be funded in part by tariff revenue. This represents a transfer of money from consumers to the agricultural sector.

**Have you seen** the videos that **Allen Reynolds** with **Southland Organics** produces? Below are links to a few. You can visit their website at <a href="https://www.southlandorganics.com">www.southlandorganics.com</a> and follow their social media pages for more. These YouTube videos are extremely well produced and are very enlightening!

Grower Spotlight: Shanon's Story

Why Windrow?

Windrowing Part 1: Setup

Windrowing Part 2: Annihilate

Windrowing Part 3: Repopulate

**Grower Spotlight: Tiffany Hodges** 

Scoop on Poop: Digestion 101

Scoop on Poop: Good vs. Bad

**DIY Farm Security Camera System** 

Debunking the "Organics" Stereotype

<u>Poultry Integrator Relations</u>

Farm Safety

Apple Cider Vinegar as a Supplement

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Achieving Adequate Flow Rate

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NRCS Interview: Money for Your Operation

5 Tips for Equipment Safety





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#### Approval of genetically engineered soy protein for 'Impossible Burger' challenged

March 19, 2020 in FoodSafetyNews.com by News Desk

The Center for Food Safety has the Ninth Circuit U.S. Court of Appeals to review a Food and Drug Administration (FDA) decision to approve soy leghemoglobin as a color additive for use in ground beef analog products. The advocacy group claims that the FDA's decision was not based on "convincing evidence" that is required by regulation.

#### Impossible Foods lines up \$500M in additional financing

March 17, 2020 in MeatingPlace.com by Kate Gibson

Impossible Foods has lined up about \$500 million in new funding, bringing the total raised to nearly \$1.3 billion, the food technology startup said.

#### JBS to launch plant-based OZO across US in April

March 11, 2020 in WattAqNet.com by Elizabeth Doughman

Planterra Foods, a division of beef and pork processing company JBS, announced March 3 that it will begin selling plant-based burgers, ground meat, Mexican-seasoned ground meat and Italian-style meatballs at U.S. grocery stores beginning in April under the brand name OZO.

Click here for full article

#### Chicken alternative startup receives \$200 million investment

March 12, 2020 in MeatPoultry.com by Sam Danley

The Livekindly Co. is on the lookout for more acquisitions.

Click here for full article

#### Beyond Meat, Impossible Foods Face Price Competition in Plant-Based Market

March 5, 2020 in Plant-Based Meat

Impossible Foods on Tuesday announced an average 15 percent cut in prices of its vegan products sold to U.S. distributors as the plantbased meat maker works to make its patties more affordable to compete better with beef, according to a Reuters report.

Click here for full article

#### **Impossible Foods Moves onto Kroger Shelves**

May 5, 2020 in FoodDive.com by Megan Poinski

Impossible Foods flagship product, the Impossible Burger, will be sold at 1,700 grocery stores nationwide owned by Kroger starting May 5, the company announced. The plant-based meat is also available now for pickup and delivery at Kroger.com. With this expansion, the number of retail stores selling Impossible Foods' products has increased 18-fold since the beginning of 2020, the company said. Impossible Foods, which started out in 2016 as a restaurant-only product, kicked off its retail push at a small handful of retailers last September. It's now available at about 2,700 grocery stores nationwide.

Click here for full article

#### Plant-based protein market evaluates future after COVID-19

April 17, 2020 in WATT Poultry Future

**2019** was the year plant-based proteins went mainstream. With consumer habits changing due to COVID-19, will interest in meat alternatives remain strong?

#### **Grocery sales growth**

In a January survey from **Gallup**, **41% of Americans indicated that they have tried a meat alternative at least once**. At least half of these respondents said that they are likely to eat plant-based products in the future.

"With emptier-than-usual grocery store shelves, the 41% of people who've tried plant-based meat products could increase when consumers are presented with fewer options than usual while looking for available protein options with acceptable shelf lives," Dan Whitmyer of ad agency **Kickdrum** wrote in **FoodDive**.

U.S. retail sales of plant-based proteins grew 279.8% the week ending March 14, according to data from **Nielsen**. This may seem like a giant surge when compared with **IRI** data that shows **retail meat sales increased 77% the week ending March 15**. However, sales of meat alternatives were already up – in the week ending February 29, sales grew 158.3% over the previous year.

The plant-based retail market is currently worth \$4.5 billion and is currently increasing at a rate five times faster than the total U.S. retail food sales.

#### **Reverting to familiar foods**

Alternatively, uncertain times could drive many consumers back to familiar eating patterns.

"Within the protein trend, the interest in faux meat will be one of the trends which COVID-19 will upend. It is clear from research that faux plant-based meats are consumed by meat eaters, not vegetarians, with curiosity being their driver. As sales numbers on these products continue to slide, COVID-19 will push meat eaters back to animal protein at an accelerated pace," a report from think tank **Culinary Tides** predicts.

#### How one food startup is rethinking their strategy

**Clara Foods**, a San Francisco-based startup that uses fermentation to create chicken-free egg whites, has put a stop to research efforts and delayed their search for retail partners. Previously, they had planned to **debut an egg replacer to markets as early as 2021**.

"Most companies, at least right now in this period of uncertainty, companies are definitely, I think, still in the process of putting out their fires," Arturo Elizondo, Clara Foods' CEO, said. "So there has been delays in terms of responses of being able to test products, test samples."

#### **Kellogg adds Incogmeato to MorningStar Farms lineup**

September 5, 2019 excerpts from MeatPoultry.com by <u>Eric Schroeder</u>

BATTLE CREEK, Mich. – Kellogg Co. is extending its MorningStar Farms portfolio with the introduction of Incogmeato by MorningStar Farms. The new product line includes the company's first ready-to-cook plant-based burger to be sold in the refrigerated meat case and frozen, fully prepared plant-based Chik'n tenders and nuggets.

"We know that about three-fourths of Americans are open to plant-based eating, yet only 1 in 4 actually purchase a plant-based alternative," said Sara Young, general manager, MorningStar Farms, plant-based proteins. "So, the intent is fully there, but it hasn't necessarily been followed with action. We know the No. 1 barrier to trying plant-based protein is taste. These consumers are still seeking the amazing taste, texture and sizzling qualities of meat but want a better alternative for themselves and the planet."

Kellogg said the 4-oz plant-based patties are made with non-GMO soy and will be sold in the refrigerated meat case. The plant-based Chik'n tenders and nuggets, also made with non-GMO soy, will be sold in the freezer section.

Also, during the Barclays presentation Cahillane said Kellogg is testing a product called "leaf jerky," which he described as being a 100 percent *plant-based meat jerky*.

Click here for full article

#### **Poultry Health Today**

- ♦ Good gut health starts before hatch, expert says
- Failure of maternal antibodies to protect against E. coli infection highlights need for early protection
- ♦ Good management and biosecurity vital to overcoming disease challenges in NAE systems

#### Investment in alternative meats reaches record levels in Q1

May 14, 2020 in WattAqNet.com by Elizabeth Doughman

The alternative protein segment obtained \$930 million in funding during the first quarter of 2020, 11% more than the total investments in all of 2019, according to a new report from the Good Food Institute.

Most of the investments in the first three months of this year went to plant-based meat, egg and dairy alternative companies, although cell-based meat companies received 20% of the funding. Cultured meat raised \$189 million, the largest amount in the history of the segment.

#### Plant-based continues to grow

Plant-based proteins were one of the hottest food trends in 2019. The industry is currently valued at \$4.5 billion.

In April, French startup Rebellyous announced that they have raised US \$6 million in Series A Funding that will be used to accelerate the development of replicable, novel equipment and standardized facilities, fast-track manufacturing, hire more employees and expand product development. The company "crafts next-generation plant-based nuggets with no birds, but all of the nostalgia," according to their website.

Last year, several top meat companies launched plant-based protein products or invested in the segment, including Smithfield, Hormel, Cargill, JBS and Tyson.

#### Cell-based meat finds its footing

Several cell-based meat companies attracted large investments in the first quarter of 2020. Cultured meat products made in the laboratory aren't on the market yet, but advances in technology mean they may be soon. Experts predict that sales of meat made <u>in vitro</u> could reach US \$630 billion by 2040.

Memphis Meats received US \$161 million in funding this quarter. The lengthy list of investors included Cargill and Tyson.

"Our continued investment in Memphis Meats underscores our inclusive approach to the future of meat. We need all options on the table to meet customer and consumer needs now and in the future," Elizabeth Gutschenritter, managing director of Cargill's alternative protein team, said in a press release about the funding. 

□

#### The Ag Watchdog Newsletter

#### March 14, 2020

#### Salt Group Warns About Fake Meat

The UK-based Action on Salt warns that plant-based meat <u>can have "staggering" levels of sodium</u>. The group surveyed plant-based meat alternatives and found a majority of them had half of the recommended daily salt intake in just one meal. Using a "traffic light" system, more than four out of five plant-based meals in restaurants would have a red light for sodium, the group found.

#### Japanese Reject "Plant-Based" Meat for Real Plants

According to market research firm FMCG Gurus, only 20 percent of Japanese consumers have tried fake meat, even as many Japanese are trying to reduce their meat and fish consumption overall. Of the consumers surveyed, 40% said fake meat didn't make them feel full, 27% said meat alternatives lacked taste, and 33% say they prefer real vegetables to synthetic meat.

#### May 23, 2020

#### NY Times Declares The End of Meat

The New York Times published <u>an op-ed</u> by longtime anti-meat author Jonathan Safran Foer arguing that it's time to end eating meat if we care about the poor, racial justice, and climate change. Foer's anti-meat arguments were also recently published in the Washington Post; read our response in the Post <u>here.</u>

#### Leading Danish poultry producer to phase out fast-growing broilers

April 28, 2020 from PoultryWorld.net

One of Scandinavia's leading poultry producers is to move to a slower growing broiler breed in a move that animal welfare campaigners have described as a "game changer".

#### EU proposes to stop 'stimulating' meat production, demand: report

May 19, 2020 from MeatingPlace.com by Lisa M. Keefe

According to a draft of its sustainable food plan, the European Commission proposes to stop "stimulating production or consumption of meat," according to a report by Politico, as summarized in the AGree newsletter of the Meridian Institute. An earlier version of the document did not include that note, Politico reportedly said. 

□

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#### TPA Hall of Fame Inductee Jimmy Breedlove has passed away

Jimmy Breedlove, 85, of Chattanooga passed away with his family by his side on March 20, 2020.

He was a graduate of Central High School. Jimmy served his country in the United States Navy during the Korean Conflict. He served on the U.S.S. Maddox 731. Jimmy retired from Koch Foods after 50 years of service. He was one of the 1st inductees to the Tennessee Poultry Hall of Fame in 2013. He was an avid University of Tennessee fan. He attended numerous football and basketball games. Most of all he was a devoted husband, father, grandfather, great-grandfather and brother.



Please share your thoughts and memories at <a href="www.ChattanoogaEastChapel.com">www.ChattanoogaEastChapel.com</a>. <a href="www.ChattanoogaEastChapel.com">u</a></a>.



#### Thank you to all essential workers!

Pictured on the left TTU summer interns Jacob Harris and Alyssa Blank at Koch Foods – Morristown. We hope everyone has a great summer!

