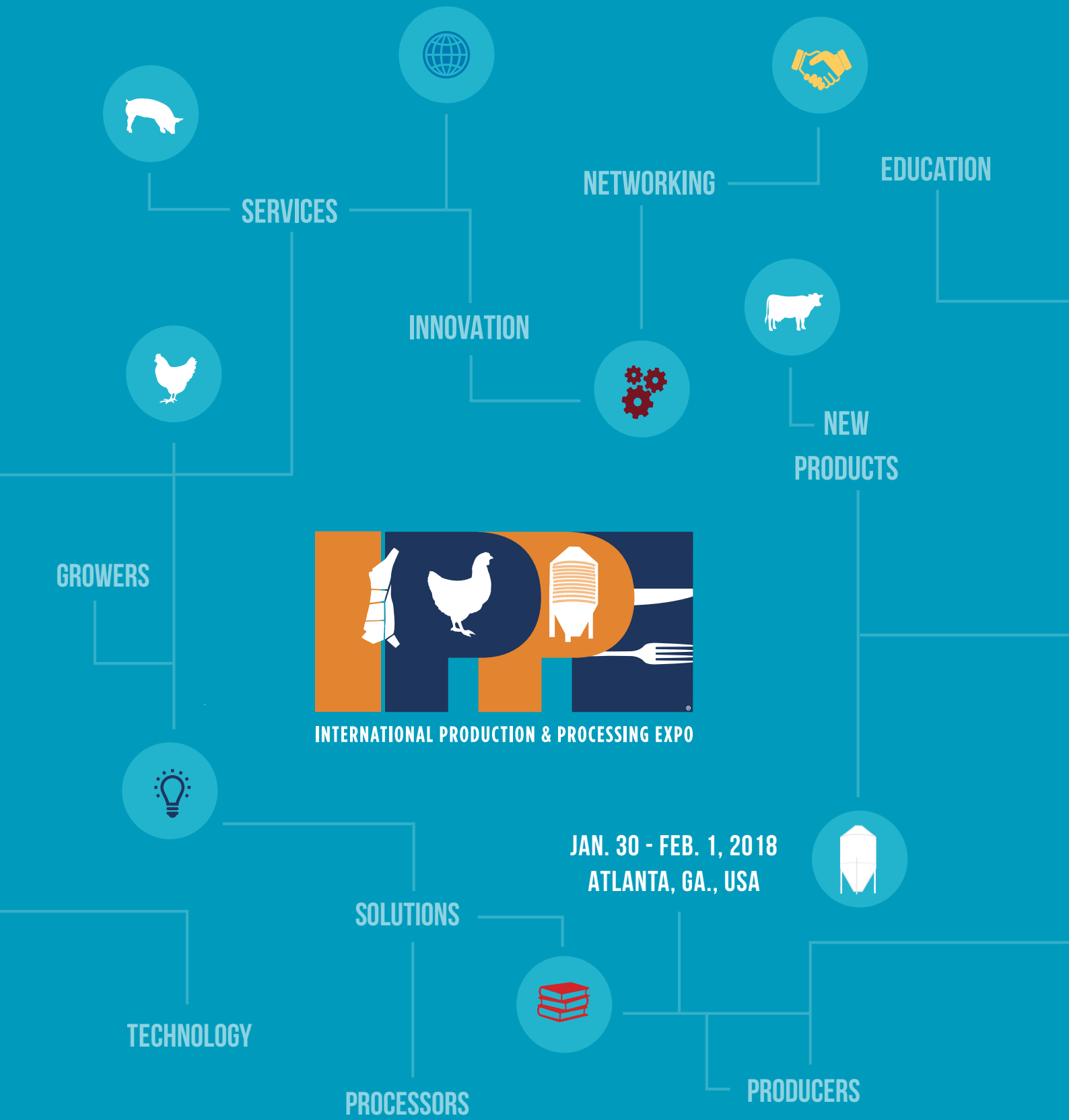


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What does 2018 hold for the US poultry industry?



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FROM THE EDITOR

“A global perspective on 2018’s opportunities and challenges”

No one in the poultry industry rests on their laurels in January – the year kicks off with the biggest international meat processing and production expo around, Atlanta’s enormous IPPE. This issue of Poultry Digital picks out just ten activities from the thousands available over the three-day event, covering everything from seminars on sustainability to chili cooking competitions (page 8).



Elsewhere in the issue we’ve taken a global perspective on some of the opportunities and challenges facing poultry producers in 2018; from the plight of ostrich farmers in Zimbabwe (page 18) to the impact of 2017’s meat inspection scandal on the Brazilian meat export industry (page 22). Elsewhere there’s an honest look at the impact of welfare legislation on egg producers from Chad Gregory at the International Egg Commission (page 16), and experts weighing in on the main factors at play in the US industry in the year ahead (page 26). That’s before a snapshot of the Japanese quail, an investigation into the tricky Woody Breast condition (page 12), and our regular slot on backyard poultry where Mike Colley answers questions on moulting; introducing new birds to the flock; and impacted crops (page 30).

With all the best for the year ahead,

Ellen Hardy | Managing Editor

Poultry Digital Magazine
#74 | January 2018



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Plan your poultry schedule with our round-up of the most important events and conferences for 2018.

Michigan egg producers try to back out of cage-free deadline

USA DECEMBER 14 2017

Eight years after agreeing to it, Michigan's egg producers are seeking to push back a deadline to provide cage-free housing for egg-laying hens



WELFARE | The 2009 law prohibits 'covered animals' like egg-laying hens, gestating sows and calves being raised for veal from being confined for the majority of a day in a way that prevents them from lying down, standing up, fully extending their limbs, or turning around freely.

Michigan's MLive.com reports that Senate Bill 660, introduced by Senate Majority Leader Arlan Meekhof, would push back the deadline by which Michigan egg producers would have to provide cage-free chicken housing from 2020 to 2025. The original 2020 deadline was created under a 2009 law that created and phased in new standards for chicken housing. It was voted out of the Senate Agriculture committee on Tuesday.

The 2009 law prohibits 'covered animals' like egg-laying hens, gestating sows and calves being raised for veal from being confined for the majority of a day in a way that prevents them

from lying down, standing up, fully extending their limbs, or turning around freely. A phase-in in that legislation meant the changes would take effect in 2020.

Although they agreed to that deadline at the time, egg producers are now hoping to push it back to align with what the private industry is doing.

Companies including Meijer, Kroger, Nestle and McDonald's have committed to shifting exclusively to cage-free eggs by 2025. That's when egg producers want to comply with the cage-free law.

[Read the full story here](#)

Dutch food safety board being sued for egg scandal negligence

NETHERLANDS DECEMBER 14 2017



Dutch farming organisation LTO is taking the food safety board NVWA to court, claiming it was negligent in the way it handled the contaminated egg scandal.

DutchNews.nl reports that in particular, LTO says poultry farmers suffered unnecessary financial losses because the NVWA did not take action last November when it was first warned that the pesticide fipronil was being used illegally as an anti-lice agent.

"The enormous damages which poultry farmers have suffered would not have happened if the NVWA had done its job properly," lawyer Roeland de Mol said on the organisation's website.

"The NVWA knew that fipronil was being used by ChickFriend but did not even give the sector the opportunity to arm itself against it."

The situation was further compounded when an NVWA official told television programme Nieuwsuur after the scandal broke that people would be better off not eating eggs.

That led to a 25 per cent reduction in sales, LTO said.

The European Commission has given the Belgian government permission to compensate its farmers but the Dutch government maintains that the private sector – ChickFriend – is responsible.

However, MPs from three of the four ruling parties have called on the government to clarify its position.

The total cost of the scandal has cost the egg industry up to €75m, Trouw said. Of the 793 poultry farms which were closed, two thirds are still out of operation.

[Read the full story here](#)

Study shows turkey waste may have future as fuel

ISRAEL NOVEMBER 20 2017

A new study shows that turkey excrement may have a future as a fuel for heat and electricity



Treated excrement from turkeys, chickens and other poultry, when converted to combustible solid biomass fuel, could replace approximately 10 per cent of coal used in electricity generation, reducing greenhouse gases and providing an alternative energy source, according to a new study by Ben-Gurion University of the Negev (BGU) researchers.

While biomass accounts for 73 per cent of renewable energy production worldwide, crops grown for energy production burden land, water and fertilizer resources.

According to the researchers, "Environmentally safe disposal of poultry excrement has become a significant problem. Converting poultry waste to solid fuel, a less resource-intensive, renewable energy source is an environmentally superior alternative that also reduces reliance on fossil fuels."

According to the study in Elsevier's Applied Energy, researchers at the Zuckerberg Institute for Water Research at BGU evaluated two biofuel types to determine which is the more efficient poultry waste solid fuel.

They compared the production, combustion and gas emissions of biochar, which is produced by slow heating of the biomass at a temperature of 450°C (842°F) in an oxygen-free furnace with hydrochar. Hydrochar is produced by heating wet biomass to a much lower temperature of up to 250 °C under pressure using a process called hydrothermal carbonization (HTC). HTC mimics natural coal formation within several hours.

"We found that poultry waste processed as hydrochar produced 24 per cent higher net energy generation," says student researcher Vivian Mau and Professor Amit Gross, chair of the Department of Environmental Hydrology and Microbiology at BGU's Zuckerberg Institute.

"Poultry waste hydrochar generates heat at high temperatures and combusts in a similar manner to coal, an important factor in replacing it as renewable energy source."

[Read the full story here](#)

Western Australian government threatens to pull out of review of chicken welfare standards

AUSTRALIA DECEMBER 22 2017

The Western Australian government has threatened to pull out of a national process to write new legal standards on chicken welfare

It has been angered by revelations on an ABC's '7.30' program that suggested the New South Wales Department of Primary Industries had been colluding with egg farmers to prevent battery cages for hens being outlawed under new proposed national standards.

It is the first time in 15 years the standards have been reviewed and animal welfare groups had hoped it was an opportunity for Australia to follow other developed countries and scrap the cages.

But documents shown on 7.30 suggested NSW bureaucrats secretly met with industry representatives to discuss how to manipulate the process to retain the use of battery cages – something the government denies.

The NSW Government is leading the national review and the state is also home to the highest proportion of egg-laying chickens in the country.

[Read the full story here.](#)

EU trade ban brings down global trade in wild birds

EU NOVEMBER 23 2017

Trade of wild birds has dropped about 90 per cent globally since the EU banned bird imports in 2005

A study published in the recognized scientific journal Science Advances demonstrates how the EU's ban decreased the number of birds traded annually from about 1.3 million to 130,000.

International trade of wild birds is a root cause of exotic birds spreading worldwide. The study was led by scientists from the Center for Macroecology, Evolution and Climate, University of Copenhagen and CIBIO-InBIO Research Centre in Biodiversity and Genetic Resources, University of Porto.

Birds are the most traded animals in the world. Historically, Europe has been the main importer of wild birds globally. Before 2005, when the EU banned trade of wild birds, Belgium, Italy, the Netherlands, Portugal and Spain accounted for the import of two thirds of all wild birds sold on the global market. The birds mainly came from West Africa, with 70 per cent of exported birds coming from Guinea, Mali and Senegal.

[Read the full story here](#)

Aviagen features brand diversity and global reach, local touch at IPPE 2018

This year will signal an exciting showing for Aviagen® at the International Production & Processing Expo (IPPE) 2018 in Atlanta.

Celebrating its 65th year as an exhibitor, Aviagen will spotlight the industry's most diverse line of quality poultry breeding products. Arbor Acres®, Indian River® and Ross® are pedigree brands developed for conventional markets, while the slower-growing Rowan Range® specialty birds are suited for emerging markets such as organic and free-range.

A Specialty Males® portfolio adds an even greater breadth of choices. This brand variety meets the individualized needs of the fast food, retail grocery, whole bird and live bird and all other global markets that demand high-value, affordable and nutritious poultry products.

Bird health and welfare, performance and efficiency

With their success in meeting varied market needs throughout the globe, all Aviagen brands share basic commonalities: they are bred with bird health and welfare as the foremost goal. And, their strong performance and efficiency add the highest value to the businesses of poultry producers far and wide, who all face unique circumstances and challenges.

Global reach, local touch

Just as IPPE will attract close to 30,000 visitors from 129 countries, Aviagen's Global Reach extends to 100 coun-



tries. In these locations, dedicated service teams leverage their extensive knowledge and expertise to support the specialized needs of local customers and make valuable contributions to local communities.

The best part of the show for Aviagen is making new acquaintances, strengthening existing relationships, and sharing ideas and knowledge on best practices and trending issues that impact the global poultry industry. Aviagen looks forward to welcoming visitors to booth B6721.

To learn more, please see www.aviagen.com.



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Please visit our booth B6721 at IPPE 2018, Atlanta



Inside IPPE 2018

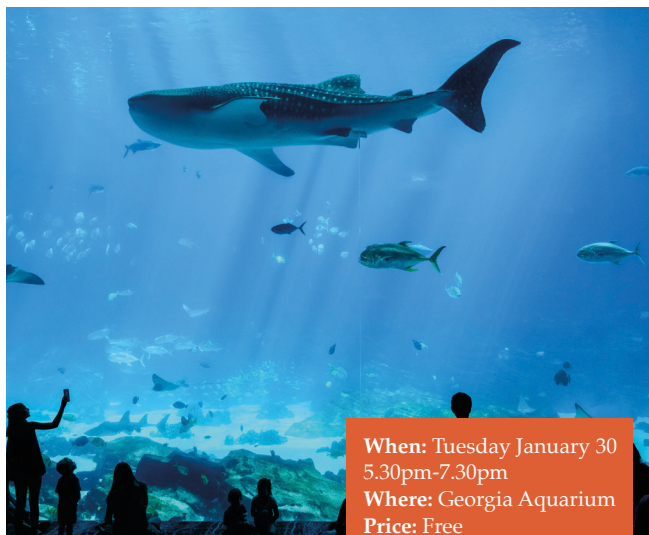
Navigate the poultry industry's biggest annual event with Poultry Digital's pick of the best events and opportunities at the famous Atlanta fair

Words Ellen Hardy

With over 1,200 exhibitors and 30,000 visitors descending on Atlanta between January 30 and February 1 for the 2018 International Production & Processing Expo, it's hard not to be overwhelmed by the sheer scale and variety of talks and activities on offer. But don't let the most important three days in the industry calendar get away from you – The Poultry Site editorial team have selected their top 10 highlights of the 2018 schedule to help you navigate the show and come away with the most important insights for the year ahead.



The team behind the show at the Georgia World Congress Center do everything to inform and entertain their audience of industry professionals across the three-day show, which is themed around Innovation, Education, Global Reach and Networking – consider using the online show planner to keep track of what’s happening where and tick off all the stands you’ve visited. The exhibitors, who range from enormous multinational companies to smaller businesses, put on an amazing array of events, launches, demonstrations, tastings, talks and competitions – make sure to leave time to wander around and take it all in.



When: Tuesday January 30
5.30pm-7.30pm
Where: Georgia Aquarium
Price: Free

1. Dive in to the welcome reception

The largest aquarium in North America, with its population of tens of thousands of underwater beasts, is the dramatic setting for the IPPE welcome reception. It’s free, but there isn’t unlimited space, so don’t forget to pick up a sticker at the B-Building and C-Building kiosk so you can attend, and kick-start your show experience by networking in style.

[Click here](#) for more details

2. Size up the year ahead in poultry

The Poultry Market Intelligence Forum, a free IPPE educational program, is an invaluable opportunity to hear from a leading economist and industry experts about the forces shaping the global poultry industry in the year ahead. Economics, bird performance and the impact of animal rights activists on industry practices are all high on the agenda.

[Click here](#) for more details

When: Wednesday
January 31, 9am-11.30am
Where: C202/204
Price: Free

3. Find out the latest scientific developments

When: Monday January 29
8am-5pm
Where: B310-B315
Price: \$55/\$115/Free for students with ID

Environmental management, nutrition, physiology, pathology, processing, products and avian diseases will all be on the agenda of the International Poultry Scientific Forum, a day-long event sponsored by the Southern Poultry Science Society, the Southern Conference on Avian Diseases and the US Poultry & Egg Association. Running the day before the official opening of the show, it’s a big draw for anyone interested in the latest research affecting the industry.

[Click here](#) for more details

4. Focus on sustainability

When: Tuesday January 30
9am-12pm
Where: C107
Price: Free

For a big picture look at how the livestock industries are adapting to a changing world, head to the Animal Agriculture Sustainability Summit. Defining sustainable practices and measuring their impact is not straightforward, and here experts share their experiences and aspirations for ensuring a sustainable future protein supply for the world population. Covers poultry, pork, beef and dairy.

[Click here](#) for more details



When: Wednesday
January 31
11am-4.30pm
Where: Booth B8715
Price: Free

5. Embrace technical innovation

The cream of the show’s 2018 exhibitors get the chance to present their fixes for operational and technical issues facing the feed, meat and poultry industries at this series of short Tech Talks – selected by IPPE staff on their technical merit. The short format and practical applications make this an excellent option for busy producers.

[Click here](#) for more details

6. Peer into the future of robotics

When: Wednesday
January 31, 8am-10am
Where: B404
Price: Free

Increasing efficiency is a foundational principle of the modern poultry industry, and the role of robotics in supporting streamlined processes is becoming ever more sophisticated. Robotics in the Meat and Poultry Industry: Putting Technology to Work is an unmissable session for anyone excited by the possibilities of increased robot use in poultry production and processing, and interested in the impact on labour.

[Click here](#) for more details

7. Meet the future of the industry

It's exciting to hear from industry greats at stands and events throughout the show, and to network with them where possible, but IPPE also takes special care to support young people interested in the industry. With students meeting recruiters and 30 bright stars under 30 who wouldn't otherwise have access to the show invited as part of the Young Leaders Programme, delegates shouldn't miss out on the chance to meet those who will be shaping the industry in decades to come.

[Click here](#) for more details

8. Get beyond fake news

Misinformation is one of the biggest topics of our times, in agriculture as much as anywhere else. Get the Facts with Meat Mythcrushers is the splendid name of this session, where speakers from the North American Meat Institute look at some of the biggest myths food producers have to contend with in the media and among consumers, and offer tools for how best to talk through the issues with customers.

When: Thursday
February 1, 8am-10am
Where: B409
Price: Free

[Click here](#) for more details

9. Make biosecurity a priority

For the first time ever at IPPE, an educational session devoted to one of the key issues of our times: biosecurity. Defend the Flock – Biosecurity Basics for Poultry & Egg Producers and Live Operations Personnel features speakers from the National Poultry Improvement Plan, the Canadian Food Inspection Agency, Select Genetics and Hy-Line International on avian influenza outbreaks, the use of hidden cameras in biosecurity and more.

When: Tuesday
January 30
9am-12noon
Where: C208/210
Price: Free

[Click here](#) for more details



10. Celebrate!

It doesn't have to be all work and no play. Make sure to cut loose and get stuck in to some of the famous annual cooking and eating events that feature some of the best local chefs and produce around. Highlights include the 6th annual Chili Cook-off, where you can taste and vote on chicken, pork and beef chili recipes from some of Atlanta's finest local chefs all competing for the 'Best Chili' title, and the BBQ Contest. A chance to celebrate the produce everyone works so hard on the rest of the year.

6th Annual Chili Cook-off

When: Tuesday January 30, 2.30pm-4pm
Where: Event zone, booth B8973
Price: Free

[Click here](#) for more details

BBQ Contest

When: Wednesday January 31, 2.30pm-4pm
Where: Event zone, booth B8973
Price: Free

[Click here](#) for more details

[International Production & Processing Expo](#)

January 30-February 1 2018
Georgia World Congress Center
Atlanta, Georgia

For an overview of the show schedule, [click here](#)



Why does woody breast still have the industry stumped?

Woody breast condition has been a stumbling block industry-wide for the past ten years. But researchers have been getting closer to the root of the problem



Words Rachel Lane

Woody breast condition continues to confound the poultry industry a decade after its discovery. The condition does not harm the birds or cause them to act differently, and it does not harm people if eaten. It does, however, cause the meat tissue on chicken to become unusually tough, with a coarse texture – prompting complaints from consumers and large amounts of affected poultry products going to waste.

The heavier the bird, and the larger the quantity of meat on it, the more likely it is to develop woody breast. While the condition can be found in leg meat, it typically affects breast meat, with enough impact to disrupt the supply chain.

Poultry production plants typically wait until each carcass has been de-feathered before allowing breasts to be touched

by human hands, which increases the expense of the process and slows production. If the breast meat is found to be unusually hard, it indicates the fillet has woody breast and the meat is moved into another supply chain, to be processed as ground chicken. The meat can then be used in chicken nuggets or other products that do not require a single, solid piece of meat.

Chicken affected by woody breast is healthy to eat, but the texture is very different, says Dr Casey Owens-Hanning, Novus International professor of poultry science at the University of Arkansas. In the laboratory, the condition can be detected in chicks as young as a week old, which suggests the problem might be genetic, says Dr John Glisson, vice president of research at the US Poultry & Egg Association. The condition seems to be associated with vascular problems in the birds.



“Broiler chickens have been bred to strengthen the genetic markers for large breast meat, and this is thought to be a factor in the development of woody breast in recent years”

Broiler chickens have been bred to strengthen the genetic markers for large breast meat, and this is thought to be a factor in the development of woody breast in recent years. One indication of this is the Athens Canadian Random Bred, a broiler chicken that has been maintained since the 1950s for research purposes. Lesions indicative of woody breast are found in this heritage breed, but not to the extent of the typical modern broiler chicken. According to Glisson, selecting genes for growth and yield has caused breeders to inadvertently select for woody breast, too.

Dr Owens-Hanning says reports of the condition have decreased, but she doesn't think it's because there are fewer instances of woody breast. Rather, people at the processing plants are getting better at identifying the condition and handling it before it gets to restaurants or consumers who would report it having been disappointed with the quality of their purchase.

Owens-Hanning first started studying the condition in 2014, and has visited several processing plants to try to determine what causes the condition and to look for similarities between the birds that have it. Genetics remains a focus in the search for

a cause, but other areas under scrutiny include the oxidation of proteins in muscles, the size of the fibre diameter and other vascular issues. In addition, it has been noted that many of the birds with woody breast have a decreased water-holding capacity, and are slightly larger on the growth curve than other birds.

Woody breast was first reported to Aviagen in 2011, one of the world's leading primary-breeding companies for broiler chickens. Since then, its research and development team has been working to understand the cause of woody breast and how to mitigate its effects.

Studying woody breasts under a microscope, the Aviagen team has found muscle-fibre degeneration and active repair, an increased deposition of connective tissue and fat and an infiltration of immune cells – which are involved in both removing the degraded muscle cells and stimulating muscle repair. These changes indicate reduced oxygen levels in the muscles, which causes them undergo oxidative stress. This in turn results in insufficient levels of antioxidants in the chickens' breast tissue. Understanding the factors that impact oxygen and antioxidant levels in the muscle has been key to Aviagen's research, says Santiago Avendano, global director of genetics for the Aviagen Group. Everything from the birds' environment to vaccinations are being studied as possible causes and contributing factors.

The R&D team has also looked at the role diet and nutrition might play. Keeping birds on the recommended growth curve and within standard weight ranges can help reduce the occurrence of woody breast. No dietary supplement has been found to reduce incidence of the condition in the field.

The condition has been seen globally across a wide range of genotypes, bird sizes and genetic origins, and according to Aviagen's researchers, there is no evidence of any mutation

“In addition to studies attempting to identify what causes woody breast, research is being carried out to develop ways affected meat products can be spotted with technology”

having played a role in the condition.

Poultry workers, meanwhile, are getting better at detecting the condition by handling fillets. As a result, says Glisson, the affected cuts are being increasingly removed from the production line and data about how often the condition occurs has become unavailable.

The US Department of Agriculture (USDA) has partnered with universities on several different research projects. In addition to studies attempting to identify what causes woody breast, research is being carried out to develop ways affected meat products can be spotted with technology. Rather than having someone touch each fillet, it might be possible to X-ray the meat or use electrical impedance measurement, a system that has been used in the fish and beef industries. A 2016 report by the US National Poultry Research Center found that

different applications of imaging technology – optical coherence tomography imaging, hyperspectral imaging, Vis-NIR hyperspectral imaging and 3D imaging – could differentiate between the muscle-surface characteristics of normal chicken and fillets affected by woody breast. Some of the methods examined had a greater than 95 percent accuracy. Additional research is to be conducted to fuse the different image-based technologies to increase accuracy.

Males and females from three modern broiler strains, and the Athens Canadian Random Bred, were studied in a 2017 report by the US Poultry & Egg Association and conducted by North Carolina State University: ‘Factors Contributing to Superficial Pectoral Myodegeneration and Sclerosis (“Wooden Breast”) in Broilers’. The researchers found that woody breast impacted almost every bird they studied. The degree of severity varied, with the ACRB birds showing less severity than their peers at eight weeks old.

A report by the Department of Animal and Food Sciences at the University of Delaware confirmed the condition seemed to affect chickens growing faster on the growth curve than other birds. Heavier birds at one week old were more likely to have a predisposition to develop the condition.

Additional studies are ongoing and are focused on the effect of dietary glutamine and arginine on the metabolism, the possibility of a virus as the cause, nutritional strategies to reduce occurrences of the disease and developing a bioelectrical impedance index for the rapid detection of woody breast fillets. **PD**



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Farming in focus

Meet the producers driving change in their industry

Words Melanie Epp

Chad Gregory
President and CEO of
United Egg Producers



As early as 2015 major U.S. retailers, restaurants and food processors, including Walmart and McDonald's, began announcing that they planned to go cage-free by 2024-25. The announcements came after years of pressure from animal rights activist groups, including the [Humane Society of the United States](#) (HSUS), [Mercy for Animals](#) and the [Humane League](#). In the years leading up to the announcements, [United Egg Producers](#) (UEP) had been working on legislation that would lead to the transition from conventional cage production to enriched colony systems. However, the bill, which was colloquially referred to as the "Egg Bill," was met with great opposition, particularly from other sectors within the agricultural industry. Chad Gregory, CEO and President of UEP, a farmer-run cooperative that represents some 90 per cent of egg producers in the U.S., explains.

What happened with the proposed Egg Bill?

Back in 2011, 2012 and early 2013, UEP was working with HSUS to try to pass a federal law in our U.S. Congress that would have been an amendment to the U.S. Farm Bill. That federal law was going to be what everyone referred to as the Egg Bill. It would have transitioned every egg producer from conventional cages to enriched colony cages by 2030. It would have been an 18-year, organised transition through a federal law to go from one kind of cage to another kind of cage. Unfortunately, that law didn't get passed because others in animal agriculture, in particular the pork industry, the beef industry and the American Farm Bureau, adamantly opposed our Egg Bill and helped defeat it.

Why did these other sectors oppose the bill?

First, they were concerned that if the U.S. Congress passed a law for the egg industry when it comes to production practices, then someday down the line they could pass a law dealing with their production standards. The second was that they didn't like the fact that the egg industry was negotiating with the devil, working with HSUS. Even though this was something that the egg industry really wanted – and was adamantly lobbying U.S. Congress, trying to have it passed – the pork industry, the beef industry, and the American Farm Bureau Federation basically thought they knew what was best for the U.S. egg industry.

What is driving the move to cage-free?

Because the federal law did not pass, animal rights groups then went to 229 retailers, grocery stores and food manufacturers and pressured them into going 100 per cent cage-free by 2024-25. So they're the ones that drove the cage-free agenda. It wasn't any retailer or food company, it wasn't the egg industry – it was these activist groups that decided since there wasn't going to be a federal Egg Bill to go one-on-one and convince retailers to go cage-free.

At the farm level, what kind of change does this mean?

The 229 retailers and food manufacturers, if you added up the number of eggs they sell and then calculate how many hens would be needed to produce that number of eggs, it's about 225–230 million hens that the U.S. will need to be in cage-free systems by 2025. Currently, there are 29 million, so roughly another 200 million.

Is a transition like this possible? Why or why not?

No, it is physically and financially impossible to do in seven years. The other complications are that those same food companies and retailers aren't fully committed to actually doing it, so they're having conversations with their egg suppliers now. Well, that leaves the supplier of eggs – the egg producer – in a really tough situation because how do you plan for that? They can't just flip a switch on December 31, 2024 and have all cage-free eggs the next day. They've got to start building them now. The retailers really don't know how to do it. They don't know how to tell their egg supplier to start building now. Also, there isn't a demand for all those extra cage-free eggs right now, so that's the confusion on the retailer's part.

How is the industry preparing for the transition to cage-free? What are some of the challenges it faces?

A lot of egg producers in the past couple of years started really building a lot of cage-free housing in the United States. But there's a massive surplus of those eggs in the U.S. because the demand from the consumer isn't there. Some grocery store chains have been trialling ways that they can encourage the consumer to buy cage-free eggs. They try lowering the price of cage-free eggs down to where it's close to caged. They've tried point of sales. None of it is working. There's one very large retail chain in the U.S. where they took caged eggs off their shelves in an entire region of the country. They were only offering cage-free in those stores in that region and their egg sales went down 55 per cent. So will those kinds of things – those kinds of economic scenarios – help convince the CEO of these food com-

panies and retailers to continue to offer choices? If they do, how bad will the pressure be from the animal rights groups?

What do you think will happen over the next couple of years?

If the pressure is so bad, I have a feeling that the CEOs of the food companies and retailers will still plan to go cage-free, but in the next 3–4 years they'll try to get more serious about how to do it, how long it's going to take us and what it's going to cost. So all those conversations and scenarios are being talked about, but there's nothing really being done yet. No contracts are being signed. There's no plan in place. There's just a lot of turmoil, conversations and words with no substance behind the words yet.

Why aren't U.S. consumers interested in cage-free eggs?

On average, consumers pay about \$1.50 for a dozen eggs. On the production side, cage-free eggs cost 36 per cent more for the farmer to produce in the U.S., but the retailer marks up cage-free eggs a lot more.

Is the price too high then?

Yes, and that's why some of them are trying to lower the price of cage-free eggs to something that's a lot more competitive. Let's say a large dozen of caged eggs sells for \$1.50, they tried doing it for \$1.75 or \$2.00, but it's still not working at this point. American consumers are so used to just going in and buying the most affordable product.

How does the U.S. egg industry currently look in terms of housing systems?

Currently, according to USDA numbers, about 85 per cent of production is in cages. The remaining 15 per cent is either traditional cage-free or organic. It's about 10 per cent cage-free, and then the other 5 per cent would be organic. Organic are pretty much the only eggs that are produced in the U.S. that have access to the outdoors. There's almost no free-range in the U.S., and there's very little enriched. There's "enrichable," but enrichable is just a basic cage that can be switched into enriched at some point.

What would it cost the sector to make that transition?

The 223 million birds that supposedly need to be cage-free by 2025 would come at a cost of \$10 billion. That's the other part of this conundrum: the banks won't lend the money to egg producers. The banks have already been telling egg farmers that they're going to have to come up with 70 or 80 per cent of that loan because anything you buy, like a car or a house, you use something else for collateral. And the banks are telling egg producers in the U.S., your customer has deemed your caged facilities as worthless at a certain point in time – they don't want those eggs anymore – therefore, that housing is now worthless. So you can't use that caged housing as collateral to get a loan to build new cage-free housing. It's physically and financially impossible to do by 2025. Will some companies make it? Absolutely. But the 223 million birds all across the country – it can't happen.

What are your thoughts on the transition to cage-free? What housing system do you think is most sustainable?

It's incredibly disappointing. In the U.S. we tend to lean on the study by the Coalition for Sustainable Egg Supply. In terms of food safety, the environment, animal welfare and costs, enriched came out better. All the reports and studies, they all say enriched is the best from the perspective of food safety, the environment, welfare and cost.

What is United Egg Producers doing now?

UEP is exploring a possible sustainability project with the World Wildlife Fund to determine the impact on the environment, food safety and animal welfare of going cage-free. We are also working on developing some video and interactive tools and templates for our members to use to have productive conversations with their customers about cage-free production. It's to educate customers on the challenges of cage-free. If the customer actually wants to go cage-free, it's trying to help our members by giving them the tools to have those challenging conversations about cage-free now versus 10 years from now. **PD**

Whatever happened to the ostrich farms of Zimbabwe?

The swift decline of one of Zimbabwe's boom industries is a cautionary tale of just how vulnerable poultry rearing can be in the face of government intervention

Words Ian Nkala

At the turn of the millennium, the sun was shining on ostrich farmers in Zimbabwe – but a rapid series of challenges across the sector conspired to bring about a sudden change in fortune. The collapse of the local currency and a bird-flu outbreak at the peak of President Robert Mugabe's compulsory acquisition of white-owned farmland in 2005 dealt a heavy blow to ostrich farming in Zimbabwe. The displacement of some 4,000 farmers decimated an industry

that generated about US \$9 million monthly through exports of ostrich skin, meat and feathers to Europe, America and Asia.

Before the industry went into crisis, around 200 farmers reared the bird commercially countrywide, but now just a few are left in private wildlife parks. Most of the abattoirs that served ostrich farmers collapsed, as did the trade association that lobbied for the producers.



Peter Cunningham was probably the biggest ostrich farmer in Zimbabwe. Aside from the farm where he raised thousands of ostriches, he also operated an abattoir and a tannery in Bulawayo, the second country's largest city. He is now only raising a limited parent stock of birds at his property in south-western Zimbabwe.

"There is nothing left," he says.

"We are keeping 150 pedigree birds for breeding purposes only – anticipating that at some point, the industry will rise again. We keep these and sell a few here and there, but our maximum has to be 150 birds. We cannot carry more because we don't have enough land for that. If we had 500 to 1,000 hectares we could go full scale."

Apart from ostriches, he breeds broilers and layer chickens and manufactures poultry feed, and he is fortunate to still have his premises – many of Cunningham's colleagues have been driven off their farms during the past 17 years. He retained his property in Matobo, 60km south of Bulawayo, because vice-president Phelekezela Mphoko protected him from eviction by a senior state intelligence officer in 2015. Not many were as lucky as Cunningham.

One of the less fortunate farmers was Cunningham's business associate Cahyadi Kumala, who ran the ostrich farm and was Cunningham's partner in the tannery. Kumala had invested US \$11 million into an ostrich meat- and skin-processing project a few kilometres north of Bulawayo, but had his property forcibly taken over by the government in June 2001.

Prior to the evictions the farmers, who were predominantly white, produced around 30,000 birds annually, collectively

“The collapse of the local currency and a bird-flu outbreak at the peak of President Robert Mugabe’s compulsory acquisition of white-owned farmland in 2005 dealt a heavy blow to ostrich farming in Zimbabwe”

earning up to US \$100 million.

Chris Rohde is a veterinary consultant who worked closely with the Ostrich Producers Association of Zimbabwe when the industry was still vibrant. As ostrich farmers left he lost dozens of clients.

"There is no industry to talk about now," says Rohde. "We did much consultancy work for them then but nothing is happening these days. Potential is there and a capable farmer can do well with ostriches. They are versatile birds, very strong. However, it is capital intensive."

Commercial ostrich farming started in Zimbabwe in the mid-1980s after locals learned of its profitability from their colleagues in neighbouring South Africa, where the first commercial ostrich farm was established in about 1860. Back then the



“Locally, demand is very small but it’s an excellent export business. However, it is very intensive in terms of management”

birds were raised solely for harvesting the feathers every six to eight months. South Africa has more than 65 percent of the world’s ostrich population and also accounts for 90 percent of the bird’s products available in the world.

About 98 percent of the slaughtered stock was exported as locals had not developed an appetite for ostrich meat. Local tanneries used to process the skin, which some leather workers processed into footwear, bags and ornaments.

“Our biggest challenge was the collapse of the Zimbabwean dollar in the early 2000s,” says Cunningham. “The bird flu outbreak of 2005 hastened the decline. Also many people who farmed ostriches left. The industry has not recovered from that.”

“In its heyday a live bird cost plus or minus US \$300,” he continues. “Locally, demand is very small but it’s an excellent export business. However, it is very intensive in terms of management. You should be always on the ground to be successful as an ostrich farmer. I hope for the best and want to play my small role in reviving the industry. It has so much potential.”

Most of the birds were farmed in Zimbabwe’s arid south-western districts where they thrived alongside cattle and game ranching. Ostriches normally avoid areas of thick bush or heavy tree cover, and inhabit wooded grasslands and other open country, such as the plains of south-western Zimbabwe. Semi-arid, open and short-grass plains are usually associated with the highest ostrich densities – both in the wild and under farm conditions.

Monica Chinamasa, president of the Zimbabwe National Farmers’ Union, says she knows very little about ostrich farming. The new land owners, she says, still have to master the art of raising ostriches as well as marketing.

“All agricultural production goes with marketing,” she adds. “I am not sure of what country we can market them in. That is why you don’t find any new farmers in that area. My understanding is that Europe is the market for ostriches. As for me, being Chinamasa [she is the wife of finance minister Patrick Chinamasa], I can’t [personally] sell to Europe because of sanctions.”

President Mugabe’s land seizures of the early 2000s courted economic restrictions from Europe and America. Under the sanctions, the president and the inner circles in his government and ruling party were banned from travelling to and trading with Europe and America. However, both trading powers have eased some of the sanctions and now more Zim-



EXPORTS | 98 percent of Zimbabwe’s ostrich meat was exported, with the skin processed in local tanneries.

babwean companies can freely trade with America and the Europe Union.

Ross Cooper, a University of Zimbabwe lecturer, conducted a study in 2002 on the impact of the land grab on ostrich farming. He wrote in *World Poultry* that as a consequence of disruptions in farming practices, the industry was under threat.

“Associated with this threat is a halt on the expansion and growth of the Zimbabwean ostrich industry. The disruptions are destroying previously established communal farming projects. Indeed, settlers are badly interfering with ostrich farming practices. The occupants keeping chickens on the farms [is] evidence [of] the total disregard for ostrich farming regulations. Settler disruptions are rated by three out of five farmers as causing significant stress to growers and breeders. Massive inflation in Zimbabwe is seriously elevating an increase in feed prices,” he wrote.

President Mugabe’s government recognises the potential that ostrich farming has and is keen to revive it, said deputy agriculture minister Paddy Zhanda in an interview with *The Poultry Site* in September 2017.

“The fact is we don’t have an industry now,” he said.

“We used to have it and I see potential in that area. Our department of livestock encourages farmers to go into ostrich production and we are always on hand to provide technical advice.” **PD**

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Focus on Brazil

The ramifications of 2017's meat inspection scandal

Words Scite – Science Communication

Nine months on from the biggest corruption scandal in its history, the Brazilian meat industry is still feeling the shockwaves. But what is the real cost of Operation Carne Fraca to Brazil's economy and the global trade in poultry meat products?

The Brazilian meat industry suffered a huge hit after Brazil's federal police made public "Operation Carne Fraca" (known as "Weak Flesh" in English language media) on 17 March 2017. This co-ordinated action was the culmination of a two-year investigation that had revealed a complex corruption scheme within the Brazilian meat-production sector, in which health inspectors and politicians were bribed to approve the sale and export of meat unfit for human consumption. The accusations include: misrepresenting products' nutritional values failing to meet hygiene standards in slaughterhouses; repackaging of out-of-date meat; tampering with the meat's colour and smell with acid and potentially carcinogenic chemical substances; and the overuse of harmful additives.

This was one of the largest police operations in Brazil's recent history, in which more than 30 companies face criminal charges, accused of multiple

illegal practices. The day the operation was launched, the federal police sent out more than 300 warrants. Two of the world's largest meat producers and exporters, BRF and JBS, were among the corporations implicated in the scandal. It was said that these two companies had representatives influencing the selection of inspectors overseeing their plants and had bribed them to approve inadequate products. Following the police's announcement, JBS and BRF shares have fallen by 10 percent and 8 percent respectively on the São Paulo stock exchange.

Brazil is the world's largest beef and chicken exporter, with agribusiness representing 48 percent of its global export trade. This means that Carne Fraca has caused disruption on a worldwide scale regardless of the attempts of the Brazil-

ian ministry of agriculture to ease the situation by claiming the investigation revealed isolated cases which did not typify the whole national meat industry. The export of Brazilian meat rapidly dropped from a daily flow of US\$60 million to US\$74,000 once the operation had been made public.

The trade balance, and consequently the country's economy, had a worrisome period during March and April with a decline of 25 percent in the meat export numbers. By the end of March 2017, 20 markets had completely suspended imports of Brazilian meat and more than 40 introduced partial bans. China, the European Union, Chile and South Korea, which together consume a third of the Brazilian meat sold abroad, said they would ban some or all imports from Brazil until the country could allay

“Brazil is the world's largest beef and chicken exporter, with agribusiness representing 48 percent of its global export trade”



misgivings about its inspection regime. Hong Kong not only suspended imports but also ordered meat products to be removed from the local market, and the United States of America vetoed the imports of in natura (ie non-processed) meat – a trade that was negotiated for 17 years and only recently approved.

In response to the Carne Fraca operation, several American, Asian and European countries have demanded changes, such as microbiological checks on meat before shipping as well as sanitary adjustments in production and storage facilities. In order to comply with such requests and to tackle the industry’s loss of credibility, the Brazilian government declared that quality standards had been set higher and fines ranging from US\$4,500 to US\$150,000 were threatened for those who failed to comply. A new lab for investigation on animal pathogens was opened and stricter rules were imposed on the inspection sector. In addition, political nominations to the ministry of agriculture’s state superintendencies were halted, to avoid any

“Surprisingly, two months after the meat scandal went public, overseas meat sales showed signs of recovery from a significant recession, and sales have picked up as some countries have lifted their embargos”

further corruption cases. In spite of the government’s guarantees that these new regulations would be implemented, a month-long audit of Brazilian slaughterhouses carried out in April 2017 by an EU team of experts revealed negative results, and the EU thereafter required new measures and further tightened control on Brazilian meat imports.

Surprisingly, two months after the meat scandal went public, overseas meat sales showed signs of recovery from a significant recession, and sales have picked up as some countries

have lifted their embargos. According to the Brazilian Association of Animal Protein, three months after the scandal broke, poultry meat exports were still 10 percent below that of June 2016, and the year-to-date exports volume until September 2017 was 2.1 percent lower than that of the previous year for the same period. However, exports to South Africa, the UAE, Qatar and Mexico contributed to the recovery of monthly sales, with a slight increase from 386,900 to 387,500 metric tonnes of poultry meat between September 2016 and September

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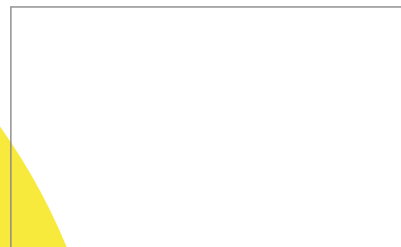
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2017. By October 2017, and despite the lower prices per tonne, profit from chicken sales showed a very positive growth.

At the end of October 2017, the Brazilian agriculture minister Blairo Maggi pledged that all losses due to the Carne Fraca operation had already been restored, and that the sanitary conditions and its supervision were continuously improving. He further claimed that no infringements had been found by the countries that were maintaining their inspections of Brazilian meat products, and only an insignificant part of the importing markets was still enforcing an embargo.

In spite of this unexpected recuperation, some recent events suggested that this scandal is still far from being forgotten. Michel Miraillet, the new French ambassador in Brazil, underlined that his country would hinder the ongoing negotiations for a free-trade agreement between the EU and the South American trading bloc Mercosur based on the Carne Fraca revelations. This allegation was supported by the latest European Commission’s Food and Veterinary Office report, which, as stated by the Irish Farmers’ Association president Joe Healy, “completely undermines any credibility to the arguments being made in the Mercosur trade negotiations that Brazil will ever meet EU production standards on meat imports”.

Nevertheless, new markets are stepping forward. For instance, in November Saudi Arabia declared its interest in increasing the imports from Brazil. Moreover, BRF, which used to account for 14 percent of the global poultry market and exported to 120 different countries, announced that one

“It has been forecasted that the global poultry-meat yield will increase by 1.2 percent in 2018 to a total of 91 million tonnes, a seventh of which will be supplied by Brazilian producers”

of its factories will reopen by January 2018 and will focus its production on the halal market for the Middle East.

It has been forecasted that the global poultry-meat yield will increase by 1.2 percent in 2018 to a total of 91 million tonnes, a seventh of which will be supplied by Brazilian producers. Although it seems that the Carne Fraca operation is still haunting the reliability of Brazilian products in the external market, Brazil doesn’t seem to have lost its place in the world’s meat industry. **PD**

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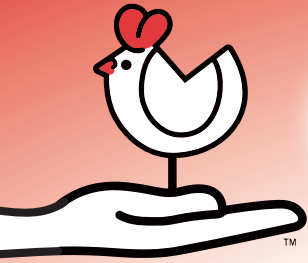
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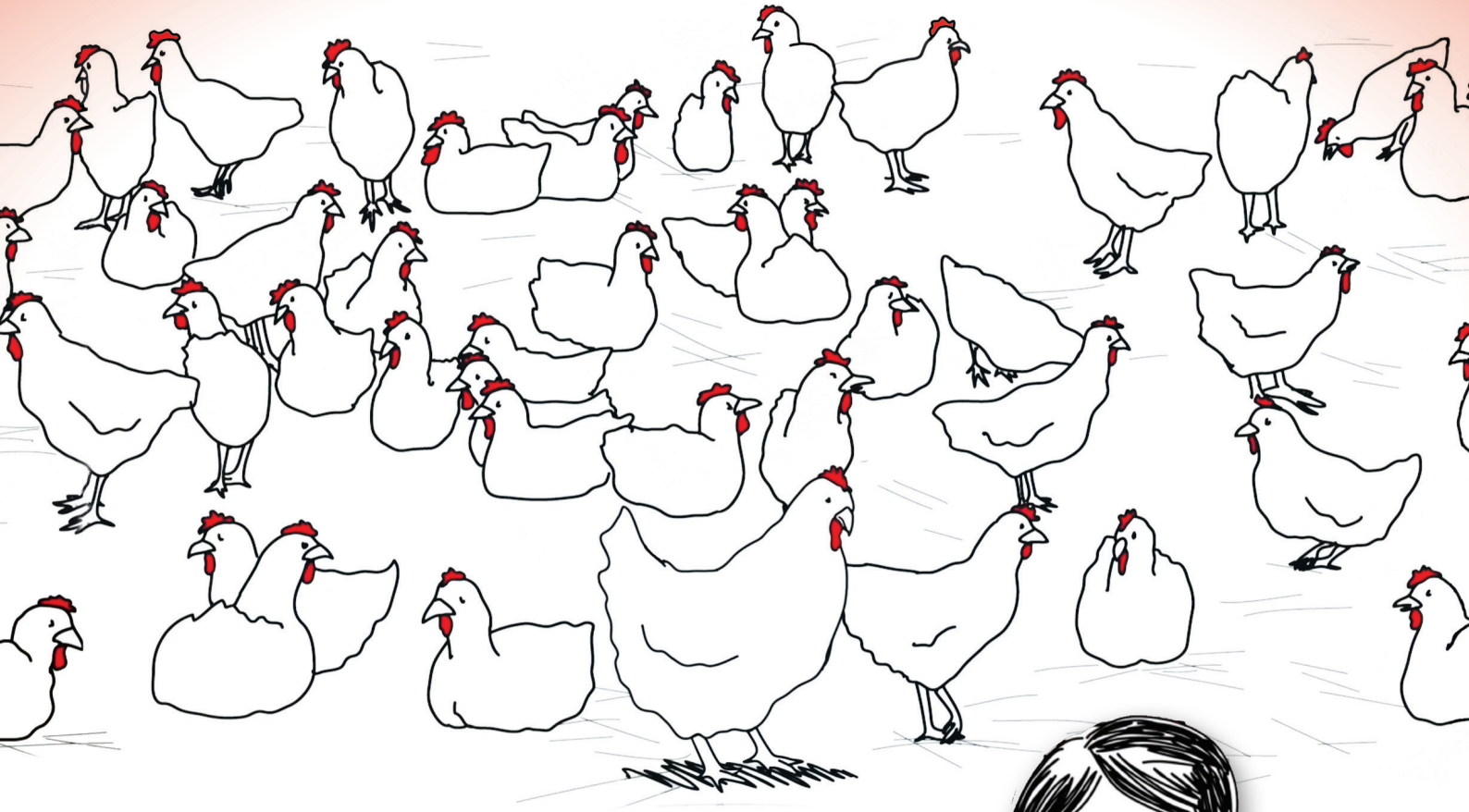


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State of the nation 2018

The aftermath of 2015's avian influenza disaster continues to be felt, but almost all industry indices are approaching post-outbreak levels

Words Treena Hein

After the extreme challenges of 2015's widespread avian influenza (AI) outbreaks and their aftermath in 2016, 2017 was a rebuilding year for the US poultry sector – and the industry appears to be very well positioned going into 2018. We checked in with three associations for their views on current issues and asked them to offer predictions of what's to come.

First, let's review 2015. That year, according to the US Department of Agriculture's (USDA) Animal and Plant Health Inspection Service, the country's poultry industry lost \$3.3 billion to AI outbreaks. A total of 50,400,000 birds were affected by highly pathogenic AI across 15 states. Only 43,000 were affected by it in 2016, but this year, AI continued to rear its ugly head. In early January, one hunter-harvested duck in Montana tested positive with a strain that appeared to match one of those involved in the 2015 outbreaks, but routine surveillance by USDA Wildlife Services did not uncover any other cases. In early March, the USDA detected two incidences of H7 (a highly pathogenic wild-bird AI strain) in commercial broiler breeder flocks in Tennessee. In May, the low-pathogenic AI strain H5 was detected on a turkey farm in Wisconsin. On 30 August, high-path AI H5N2 (the 2015 strain) was detected in a wild duck in Alaska.

Most bird depopulation in 2015 occurred on egg and turkey farms. According to the USDA's 2015 Poultry Production and Value Summary, poultry meat prices remained steady during that time, but egg and egg product prices reached record highs due to a shrunken supply. Since then, egg prices have decreased dramatically (more on that later).



“The US Poultry & Egg Association reported last year that the US egg sector lost 16 international markets in 2015, including China (worth \$391 million at the time), Russia (\$153 million) and South Korea (\$123 million)”

Exports of eggs were hard hit. The US Poultry & Egg Association reported last year that the US egg sector lost 16 international markets in 2015, including China (worth \$391 million at the time), Russia (\$153 million) and South Korea (\$123 million). Although US broiler flocks did not experience any AI outbreaks in 2015, the sector also lost export markets due to various blanket trade restrictions, with a total export loss of over \$1 billion that year according to the National Chicken Council (NCC).

Export demand is improving, reports NCC communications director Tom Super, but could be better. He says keeping existing trading partners, re-establishing previous ones and opening new markets will be a high priority going forward. China has still not lifted the ban it placed in January 2015 on import of US poultry meat products, and a few other countries still have bans relating to individual states, such as Taiwan which continues to ban products from Tennessee.

Current issues: biosecurity and AI

Due to the AI shockwave, biosecurity was stepped up industry-wide in 2016, and Super says that throughout 2017, enhanced biosecurity has been firmly established as the new norm on broiler farms.

“There were two positive detections of highly pathogenic AI in Tennessee in March and the response to these incidents is to be commended,” he reports. “Through collaboration among industry, state and federal officials, the virus was found quickly, depopulation was immediate and quarantine zones and surveillance were set up fast and

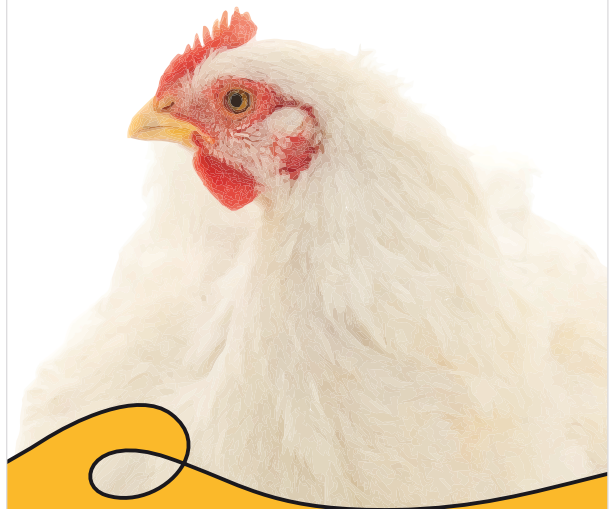
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“The NCC predicts that Americans will eat more than 92lb (41.7kg) of chicken per person in 2018, inching closer to overtaking beef and pork consumption combined, and partly due to chicken working its way into breakfast options”

effectively. This, coupled with enhanced on-farm biosecurity, led to the very fast eradication of the virus.”

Advanced biosecurity practices are also the new norm on US egg farms, notes United Egg Producers (UEP) president Chad Gregory. “UEP also has been working to educate our customers and the public about increased biosecurity protocols, and in late 2017,” he says, “we released an animated video that provides an overview of the detailed measures in place.”

Welfare and public trust

In the recent past, NCC research has found troubling consumer perceptions of chicken – for example, the belief that chickens are genetically modified, and that poultry meat contains antibiotics or added hormones or steroids – and the organisation has launched its Chicken Check In education campaign in 2016. Super says the programme has been successful and they are continuing to employ it to answer consumers’ questions about chicken production. “Food is an emotionally charged topic,” he notes, “and with conflicting information readily available online and on social media, it’s understandable people are concerned. With open arms, we invite consumers to come and take a look at the work we’re doing to progress as an industry.”

Early in 2017, the NCC Board approved an update to the NCC Animal Welfare Guidelines, and certification by a third-party auditor is expected by the end of January 2018. Super adds that the industry has also made “remarkable” progress in relation to food safety since the implementation of the performance standard for chicken parts, released in July 2016 by the Food Safety and Inspection Service (the USDA’s public health agency). Incidence levels for both Salmonella and Campylobacter on chicken parts are currently meeting the performance standards, and Super says the industry has reduced positives for both pathogens on chicken parts by one third over the past year. “This is a testament to the industry treating food safety as a non-competitive issue,” he says, “led by NCC and coming together to achieve a common goal – making chicken as safe as we can for consumers.”

General industry performance and outlook

Overall, 2017 was another profitable year for the broiler industry. “Retail and food service demand for chicken remained strong,” Super notes, “coupled with ample feed and moderate corn and soybean meal prices.” One ongoing challenge this year, however, was the slippage between weekly eggs being set for hatching and the resulting day-old chicks available to

be placed on growout farms. “In 2017, 3 percent more eggs were being set in incubators but only 2 percent more baby chicks were placed on farms,” Super explains. “Analysts noted a number of factors for the slippage between eggs sets and chicks placed. Among the reasons suggested are the changed genetics of the breeder hens, the age of the hatchery supply flock, and the measurable shift away from using antibiotics in breeder flocks and in the hatchery. As the industry moves through 2018, the year-over-year comparisons should begin to move back toward a more normal scenario between weekly egg sets and weekly chicks placed.”

The NCC predicts that Americans will eat more than 92lb (41.7kg) of chicken per person in 2018, inching closer to overtaking beef and pork consumption combined, and partly due to chicken working its way into breakfast options.

Egg prices in 2017, however, were very low. While producers continued to convert conventional cage housing to meet the 2025 sourcing commitments for cage-free eggs made by major North American companies, cage-free eggs cost more at the retail level and there is a surplus of them. In the wake of the 2015 outbreaks, there is still an oversupply of cage-produced eggs as well. This has all resulted in some of the lowest egg prices in many years. Many industry players are urging retailers to begin aggressive promotion of cage-free eggs and to increase the price of cage eggs so that the price gap between them and cage-free eggs can close.

“Together with their customers, US egg farmers must individually identify the most feasible ways to manage the pre-transition periods leading up to the 2025 target date announced by many customers,” Gregory notes. “The egg industry still needs another 200 million hens that are cage-free to satisfy industry commitments for that date.” He notes that cage-free production is much more expensive than traditional production, and that some industry experts estimate the entire transition will cost egg farmers more than \$10 billion. “It is not practical, nor feasible, to make this transition quickly,” Gregory asserts.

In terms of export outlook for 2018, USA Poultry & Egg Export Council president Jim Sumner is optimistic that China will open its borders in the near future. “It’s largely a market for chicken paws,” he says, “so being able to this product would help the bottom line for many of our producers.” Other export markets expected to open in 2018 include New Zealand (processed egg products), South Africa (table eggs and processed egg products) and Morocco (eggs and poultry meat products). “We are looking at 2018 as a very strong year for all exports, perhaps the best year ever,” says Sumner. “Poultry and egg consumption is increasing around the world.” **PD**

Introducing...

Japanese quail

Words Ellen Hardy

As early as the 11th century, these attractive, diminutive birds were domesticated by the Japanese and bred selectively – not for their meat or eggs, but for their song. Quail have around 28 different call types, and in early Japan were used in song contests; the breeding lines for these birds were very ancient, but sadly lost during World War II.

It wasn't until the early 1900s that Japanese breeders started selecting quail lines for increasing egg production – these populations were also damaged by the war, but those that survived are the nucleus of all modern commercial and laboratory birds. Since the second half of the 20th century, quail have become popular worldwide – often as an alternative poultry meat, but principally for their eggs. They have an extremely efficient feed to egg conversion ratio, and can lay up to 300 eggs per bird per year, and quail farming has spread across Asia, Africa, Europe and the USA to become a small but significant part of the global poultry industry.

Perhaps uniquely in the avian world, quail have also made their mark beyond the Earth's atmosphere. Japanese quail eggs have been in orbit as part of projects on Soviet and Russian spacecraft – including Bion 5, Salyut 6 and Mir – and in March 1990, Mir even witnessed the patter of tiny quail feet when their eggs were successfully incubated and hatched aboard the space station. **PD**



YOUR QUESTIONS

Poultry professional Mike Colley answers the best questions from The Poultry Site community.



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Q: Am I right in thinking that you should introduce new hens into your coop during the night?

A: Domestic chickens on the whole are social creatures, with a few exceptions – namely the Asian Hard Feathered breeds. Some of these, like the Malay, are very aggressive and even tend toward monogamy. Aggression in poultry is a way of protecting resources, getting the best mates or even roosting positions. The aggression may be expressed in head pecking, through to full-blown kicking and jumping fights that may result in death. Badly pecked birds may lose combs, wattles and eyes. Vent and feather pecking are not aggressive behaviours but behavioural disorders (vices) that have to be dealt with in other ways. So aggression in chickens is very unpredictable, but night time is a good time to mix birds as they become acquainted with smells and sounds. The mixed birds will have to sort out a new pecking order, so expect some fighting, as long as it's not prolonged or injurious. Anything to distract the flock will help – fresh leafy vegetables are good, or some plain mixed cereals, also plenty of space and obstacles to work around. Characteristics which may exacerbate problems between mixing birds are size, colour or any noticeable differences like a crest. The key is caution and patience; it's worth putting new birds in an adjacent pen so they can become acquainted through the mesh for a week or so.

Q: What adjustments to diet should I make to support my chickens through moulting?

A: Moulting is a natural annual process that all birds go through, but it can present some problems and is not always predictable, though autumn is the usual time for chickens. Going back a few decades, commercial poultry farmers practiced forced moulting towards the end of the first laying cycle. This was done by putting the birds in a darkened shed and depriving them of food and even water, some may just feed a few oats. This would put the birds in shock; they would stop laying and start moulting. Once the feathers had dropped the birds would be returned to the normal routine, feathers would grow back and laying resume for the second cycle. Thankfully this practice is now illegal, but the legacy of changing feed etc. may still be in the psyche of domestic poultry keepers. The main components of a poultry diet supply energy, protein and minerals such as calcium carbonate. During lay the bird needs energy to maintain its body and its functions, protein for body repairs, growth and eggs; finally the minerals are required for bones and eggshells as well as general health. In moult and cessation of egg production, birds need energy primarily for feather growth. Feathers are

made of keratin which itself is a type of protein, and then the birds need minerals to replenish its skeleton and maintain other bodily processes. You can get diets specifically for moulting birds which you can use by all means, but personally I would continue feeding a standard layers rations which should continue to supply the necessary nutrients to your birds.

Q: What is the best way to deal with an impacted crop?

A: An impacted crop in your pet chicken is a medical emergency and should really be treated as such. Impacted crops happen when the exit from the crop to the proventriculus (glandular stomach) is blocked or damaged. In more severe cases the digestive tract may be blocked or damaged further down. If the impaction is not dealt with there is a slim chance it will clear by itself – put the bird somewhere comfortable on its own with access only to water, and don't be tempted to syringe water or oil down its throat as this can too easily get into the respiratory tract and choke the bird. If after 24 hours the size or texture of the crop has not reduced or changed, you have a duty of care seek professional advice from a vet. If the condition is left the poor bird will suffer an uncomfortable death as it slowly starves. To avoid a compacted crop, ensure food is available throughout the day so very hungry birds don't gorge themselves on dry food which may expand in the crop and cause a blockage and choking. Supply insoluble grit (flint or granite) to aid breakdown of solids and fibres in the gizzard. Grass can cause obstruction issues in the digestive system, and this is especially true of birds with a restricted diet such as the very heavy breeds as they try and top up their ration with excessive grass consumption.

Mike Colley

Mike has had an interest in all things chicken since he first asked his mum on the school bus "what colour eggs do different coloured chickens lay?" aged five. Over the next 45 years Mike developed his knowledge of poultry: in his backyard, breeding, hatching, showing and selling chickens, as well as in the commercial poultry industry as an Area Manager and, latterly, a Research Manager.



A close-up photograph of a person's hands holding a brown chicken. The person is wearing a grey button-down shirt with a red patterned collar. The chicken has a prominent red comb and wattle. The background is a soft-focus green field.

It's as simple as this:
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EVENTS

Poultry events from around the globe

London Poultry Show 2018

Date: 4-5 April

Location: London, UK

As one of North America's premier poultry trade fairs, the London Poultry Show brings together the best in the poultry industry each April.

www.poultryindustrycouncil.ca/education-extension-events/london-poultry-show/

British Pig & Poultry Fair 2018

Date: 15-16 May 2018

Location: Kenilworth, UK

The UK's only dedicated pig and poultry industry event, with 350+ exhibitors and free entry for visitors. A great place to do business in 2018.

www.pigandpoultry.org.uk

VIV Europe

Date: 20-22 June 2018

Location: Utrecht, Netherlands

VIV Europe is a European trade show based on the 'Feed to Meat' principle. The event aims to become the a global leader in animal husbandry and processing events. The multi-species event includes the sectors of poultry meat, eggs, pork, beef, and dairy.

www.viveurope.nl

XVth European Poultry Conference

Date: 17-21 September 2018

Location: Dubrovnik, Croatia

The conference will be structured around plenary meetings, workshops, a poster session and an exhibition, as well as technical tours giving an overview of various relevant developments in the area of poultry science. The scientific programme of the XV European Poultry Conference has been developed in collaboration with the Chairmen of the Working Groups of the European federation of WPSA. It will be focused on the main issues currently related to poultry research and production in order to add to and improve knowledge in a world where information and innovations spread rapidly.

www.epc2018.com



DUBROVNIK | XVth European Poultry Conference is being held in Dubrovnik, Croatia

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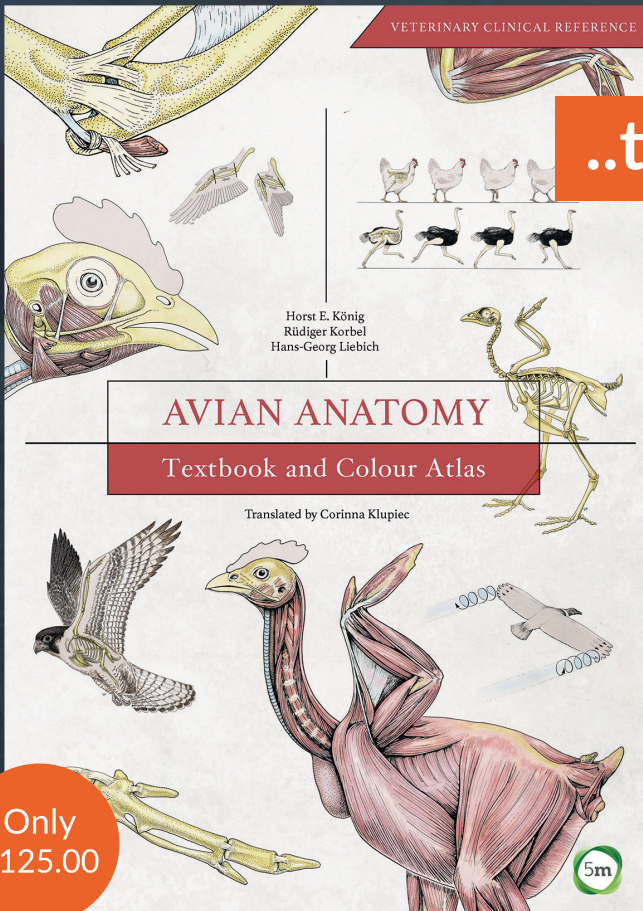


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