

# WATT Poultry International

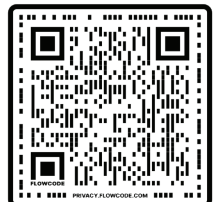
Production, processing and marketing worldwide

**STRONG OUTLOOK**  
for global poultry despite challenges

How poultry production can adapt to climate change

2023 IPPE to deliver innovative technology, meet learning goals

SCAN HERE



poultryinternational-digital.com



All poultry farms, wherever they might be and whatever their size, need an adequate administration of food.

All feeders in the company's range are easy to assemble and maintain.

The whole product range is made to follow the entire cycle growth of the animal, from the chick up to the adult stage, through products designed to satisfy all poultry species.

The materials used to produce our products are adequately tested so that they can be coloured and customised according to customer requirements.

**See us at IPPE, Booth B5347**



[www.poultryplast.com](http://www.poultryplast.com)



# WATT Poultry International

Production, processing and marketing worldwide

## COVER STORY

### 4 Strong outlook for global poultry despite challenges

Demand for chicken meat will remain strong into 2023, but producers will need to handle production costs with care.

MARK CLEMENTS

## FEATURES

### 8 Europe's largest avian influenza outbreak to worsen

MARK CLEMENTS

### 10 UK free range egg production increasingly unsustainable

MARK CLEMENTS

### 12 How poultry production can adapt to climate change

MARK CLEMENTS

### 16 Brazil, one of the most sustainable poultry producers

BENJAMÍN RUIZ

### 18 2023 IPPE to deliver innovative technology, meet learning goals

ANDREA GANTZ

### 20 Education key for sustainable poultry and egg sector

VINCENT GUYONNET

### 24 Aviagen feed mill raises the bar on biosecurity

EIUSE SCHAFFER

### 30 Evaluating antibiotic alternatives for poultry production

MARY JO DAVIS



Cover image by: fotolgahan | iStock.com and Boonyachao | iStock.com

### 34 Water consumption data can unveil poultry health secrets

ELIZABETH DOUGHMAN

### 36 How to unlock hidden value in poultry processing line data

DR. RICHARD PARMEE

### 40 Attitude, approach key for processors' long-term survival

EDUARDO CERVANTES LÓPEZ

## DEPARTMENTS

2 Editor's Comment

3 WATTPoultry.com

43 Products

44 Advertisers' Index

# All best wishes for the year ahead



**A**s we close a year that turned out to be so very different to what was expected, we look into 2023.

The difficulties that poultry producers have faced over the last 12 months, for example, rising input costs, logistics and labor issues, will continue in 2023, but they are expected to ease and, importantly, demand for chicken will remain strong. If the industry is able to overcome supply-side problems, it ought to be able to

benefit from this strong demand for the world's most economical protein.

The horizon, however, is still not clear of dark clouds, and after our lead story we look in depth at Europe's worst ever avian influenza outbreak and its impact on the local industry. There are fears that parts of the industry may not survive in their current form, and the situation is set to worsen as winter progresses.

From Europe we return to a more global view and look at how the industry can adapt to climate change. Numerous projects are underway, some more acceptable than others, to find ways that the sector can adapt, and we bring you details of some of these.

## Ever more sustainable

We then head south to Brazil, where the local industry maintains that it is among the most sustainable producers of poultry meat in the world, and that far too often judgments are made about it without due consideration of the facts.

Continuing with the theme of sustainability we look at how education is essential if the global egg industry is to be truly sustainable. And, in our regular serving of poultry nutrition, we focus on evaluating antibiotic alternatives and visit an Aviagen feed plant that raises the bar where biosecurity is concerned.

In our monthly visit to the poultry processing plant, we look at making the most of unexploited data, and we argue that processors must adopt the right attitude and approach if long-term survival is to be assured. As ever at this time of year, we bring you a preview for the International Production and Processing Expo, which will take place at the end of January.

A packed issue which leaves me just one line to send all the best from the Poultry International team for the year ahead. ■

 Follow Mark Clements in his blog  
[www.WATTAgNet.com/MarkClements.html](http://www.WATTAgNet.com/MarkClements.html)



## CORPORATE HEADQUARTERS

401 East State St., 3rd Floor  
 Rockford, IL 61104 USA  
 Tel: +1 815 966 5400

Contact us at  
[www.wattglobalmedia.com/contact-us](http://www.wattglobalmedia.com/contact-us)

## Subscription questions:

+1 855 896-3491  
[poultryinternational@omeda.com](mailto:poultryinternational@omeda.com)

## Publisher, International:

Greg Watt

## Director of Content:

Terrence O'Keefe

## Director of Global Agrifood Sales

Jeff Miller

## EDITORIAL TEAM

### Editor:

Mark Clements

### Digital Content Director:

Jim Winter

### Associate Editor:

Emma Cottrell

### Senior Reporter:

Roy Graber

### Social Media & SEO Editor:

Kathleen McLaughlin

## ART/PRODUCTION TEAM

### Art Director:

Tess Stukenberg

### Senior Production Coordinator:

Connie Miller

## SALES TEAM

### Northern Europe, Asia, Africa

Frans Willem van Beemen

### Southern Europe, Latin America

Tineke van Spanje

### China, Southeast Asia

Dingding Li

### USA/Canada

Chad Forster

Mary Harris

## SOCIAL MEDIA



<https://www.facebook.com/WATTPoultry>



<https://twitter.com/wattagnet>



[www.youtube.com/WATTPoultryTV](http://www.youtube.com/WATTPoultryTV)



<https://www.linkedin.com/showcase/WATT-Poultry>

## EU to consider ban on culling male layer chicks

The European Commission is considering an end to the culling of male layer chicks across the European...

[www.WATTAgNet.com/blogs/23-poultry-around-the-world/post/46059](http://www.WATTAgNet.com/blogs/23-poultry-around-the-world/post/46059)



Marichagen | Dreamstime.com



devon | BigStock.com

## H5N1 avian flu reported in Colombia, Mexico

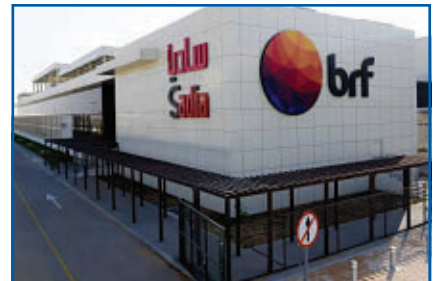
New cases of highly pathogenic avian influenza (HPAI) in Colombia and Mexico have been reported to...

[www.WATTAgNet.com/articles/46073](http://www.WATTAgNet.com/articles/46073)

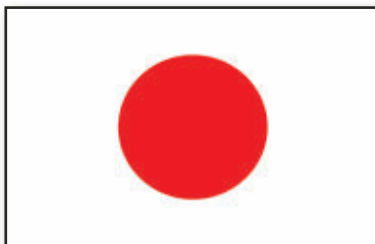
## BRF agrees to new joint venture in Saudi Arabia

Details are emerging from BRF S.A. about a joint venture it is forming with Halal Products...

[www.WATTAgNet.com/articles/46070](http://www.WATTAgNet.com/articles/46070)



Courtesy BRF



knox\_x | Freeimages

## Season's first HPAI cases in Japanese poultry

In the last week of October, Japan's agriculture ministry confirmed the country's first cases of highly...

[www.WATTAgNet.com/articles/46111](http://www.WATTAgNet.com/articles/46111)



# STRONG OUTLOOK for global poultry despite challenges

The global poultry industry continues to suffer supply-side difficulties, but demand for chicken remains strong.

MARK CLEMENTS



**W**ill it be a question of glass half full or glass half empty for the global poultry industry in 2023? While the market outlook is strong as 2022 draws to a close, the sector is, nevertheless, burdened with high input costs and significant uncertainty.

Looking to the positives, demand for chicken meat remains healthy and global supplies are tight. Economic conditions are deteriorating around the world, with an upturn seen as being some time away. Consumer behavior, in the face of uncertainty and higher inflation, is more cautious which, where food purchases are concerned, tends to favor chicken.

Against these strong market conditions needs to be balanced continuing high costs, be they for feed, labor and distribution or energy, with the latter accounting for an ever-greater portion of the cost of producing a chicken. High energy costs, however, are affecting some regions more than others. Similarly, avian influenza (AI) continues to impact some major production regions.

### High costs to continue

In its latest Poultry Quarterly report Rabobank notes that feed costs are forecast to remain high, even if they are below the highs recorded earlier this year. As 2022 draws to a close, prices are similar to those recorded in Q1, and are expected to remain so for a number of months. While still high, this will be 10-15% below those for Q2 2022.

This decline can be attributed, in part, to Brazil's relatively strong corn and soybean crops entering the market over the last six months and the good wheat and soybean crops expected in the U.S.

While there may be at least some good news where feed costs are concerned, this is not expected to be the case for energy, especially in Europe, where gas prices, for example, remain exceptionally high.

High energy costs will continue to impact both at the farm and processing levels. In the case of the latter, it will, in particular, exacerbate, CO2 shortages and costs, as well as prolonging high cold storage and distribution costs.

Higher energy costs, however, are not impacting all regions equally. Europe, North America and Northeast

Asia are the most affected regions, while there has been less of an impact in others, particularly in the Southern Hemisphere.

### Avian influenza

AI continues to spread globally, with ongoing cases in the Northern Hemisphere, even in summer months, and in Southeast Asia and Africa. The ongoing risk of the disease's spread, and disruptions to trade in breeding stock, is causing a tight supply situation in some regions.



**As consumer behavior shifts toward more value purchasing, chicken is increasingly benefitting.** *nastya\_ph | Shutterstock.com*

Europe, the U.S. and Mexico are the countries that have been hardest hit, and the virus's persistence outside of the winter season suggests that it is becoming more endemic.

### Glass half full

While the global industry is having to live with supply-side issues, demand for chicken meat remains strong. A weaker economic climate and pressure on spending will lead to greater chicken meat consumption in many markets.

Good market conditions, however, are not universal. In Brazil, for example, producers have been struggling with weak demand on the home market and rising supply, Rabobank notes. There has been some improvement, as feed costs have come down and prices risen, but the market remains challenging.

Similarly, in the U.S., rising supply is leading to



## STRONG OUTLOOK FOR GLOBAL POULTRY DESPITE CHALLENGES



**Trade is forecast to remain strong with the U.S. and Brazil expected to be major beneficiaries.** *Cybrain | Shutterstock.com*

some reduction in profitability, but both the U.S. and Brazil are doing well in export markets.

In Europe, the market is more positive. Chicken prices have remained high due to production being below 2019 levels, while in China, after a difficult first half, the market is recovering with limited supply. In Thailand, the impact of African swine fever on pork supplies is keeping local chicken prices high.

In Japan, prices have been rising and stocks run down in response to the local industry's inability to raise output in line with strengthening demand. In Southeast Asia, countries such as Vietnam, Malaysia, Bangladesh and Indonesia have seen government intervention due to rising prices.

Tight local parent stock supplies have been occurring in some parts of the world, for example in several African, Middle Eastern and Latin American countries, due to the effects of COVID-19 and AI.

### Booming trade

These tight local supplies have been positive for trade. 2022 has witnessed record highs, and

conditions are forecast to remain tight over the months ahead. Chicken prices have stayed high in global markets, and the value of leg and breast meat prices has been rising. Due to weaker demand from China, the price of paws has been falling; however, this is expected to reverse.

Major importers, such as Europe, Japan, Saudi Arabia and the United Arab Emirates, have all been importing more.

In some markets, for Saudi Arabia, South Africa, and the Philippines, import controls have been relaxed to help control inflation. Other countries may be

expected to follow suit.

The biggest beneficiaries in global trade have been the U.S. and Brazil, which recorded growth of 12% and 8% respectively during Q2.

European exports have been heavily hit by AI related restrictions, while Thailand has also experienced difficulties in international markets due to higher costs. Thailand may be able to recover some of its lost ground as 2023 progresses, but the main beneficiaries over the months ahead are expected to be Brazil, the U.S. and China.

Türkiye is also expected to benefit, helped by its weak currency, while Ukraine should gradually recover its position, particularly with support from the European Union. ■



**Will strong H2 demand benefit global poultry industry?**

[www.WATTAgNet.com/articles/45505](http://www.WATTAgNet.com/articles/45505)



# Have you heard the word?

FOODMATE IS THE  
HOME TO INTELLIGENT  
SOLUTIONS.

Two new innovations to be unveiled at IPPE 2023.  
Stop by our booth for live, on-demand demonstrations.

Booth C-13813  
IPPE - January 24-26  
Atlanta, GA



# Europe's largest avian influenza outbreak to worsen

HPAI outbreaks continued during the summer and were witnessed from the Arctic to the Mediterranean.

MARK CLEMENTS

**C**lose to 48 million poultry have been culled in response to Europe's largest highly pathogenic avian influenza (HPAI) epidemic. As the region's winter deepens, the number is expected to rise further still.

Over the 2021-2022 epidemic seasons, 2,467 outbreaks were recorded on poultry farms, while 187 detections were seen in captive birds and 3,573 in wild birds, according to data published by the European Food Safety Authority (EFSA) in late September.

Indicative of the severity of Europe's most serious epizootic in recent history, conclusions on a strategic approach for the developing vaccination as a complementary tool for HPAI control and prevention were adopted by the European Union Council in May.

In some parts of the continent, the disease is thought to be putting the survival of poultry production at serious risk.

In France, for example, the Pays de Loire, the country's second largest poultry-producing region, recorded 860 outbreaks of HPAI in only six months. ANVOL,

the country's broiler association, has warned that the entire production chain is in danger and that, for the first time, all domestic species had been affected.

## Unprecedented spread

Europe's 2021-2022 HPAI season has had unprecedented geographical spread, extending from the Svalbard Islands, one of the world's northernmost inhabited areas, through to the south of Portugal. Thirty-seven European countries have been affected.

While the European poultry industry may now again be heading into the peak transmission period, it has had at least some relief over recent months.

EFSA's latest report, covering June-September, reveals that the number of outbreaks in domestic poultry rapidly fell over the period, following two peaks between the fall of 2021 and the spring of 2022.

In August, however, a third, smaller, peak occurred. This comprised 56 poultry premises — five times more than during the same period during the last epidemic — with Germany, where 15 premises were affected, the Netherlands and the U.K. being the most affected countries.

In the U.K., which confirmed at least 190 bird flu outbreaks and saw over 3.5 million birds culled over the 12 months to October



Western European poultry hard hit by avian flu  
[www.WATTAgNet.com/articles/46006](http://www.WATTAgNet.com/articles/46006)

Seabirds' dense colonies facilitate virus transmission. HPAI detections during the summer months were unprecedentedly high this year, whereas in previous years there were no or only low detections.

Ron Kolef | Shutterstock.com

this year, the country's Chief Veterinary Officer Dr. Christine Middlemiss, commented: "We are seeing a growing number of bird flu cases on commercial farms and in backyard birds across the country driven by higher levels of disease within wild birds.

"Unfortunately, we expect the number of cases to continue to rise over the coming months as migratory birds return to the U.K., bringing with them further risk of disease that can spread to our kept flocks."

### Seabird colonies

Along Europe's northwestern coast, several colony breeding seabird species have exhibited widespread and massive mortality due to HPAI, with the number of HPAI detections in seabirds being 35% higher than over the same period last year.

Summer months have traditionally seen little, or no, virus detected in seabirds. However, between June and September this year, detections in wild birds reached 710, although the actual level of infection will probably be much higher.

The highest number of detections in wild birds occurred in Germany, with 199 incidences reported. Germany was followed by France, with 142 detections, and the Netherlands and the U.K. with 112 apiece.

Changing migration patterns are thought to be contributing to the spread of the virus and its survival through the summer months, possibly due to mutation, which represents an ongoing risk for poultry production.

Since October 2020, the H5Nx 2.3.4.4b lineage of HPAI has spread across Europe, the Middle East, Africa and Asia. Seven genotypes are now present in Europe, with three having been identified for the first time during the latest reporting period.

### Growing interest in vaccination

If further evidence were needed that attitudes to HPAI vaccination are changing in Europe, in late October, the International Alliance for Biological Standardization, an independent, nonprofit scientific alliance, held an international meeting to look at HPAI vaccination strategies and the removal of unnecessary barriers to their usage.

The event took place at the headquarters of the World Organization for Animal Health and looked at how a harmonized vaccination strategy with updated vaccination strains and innovative technologies, combined with appropriate diagnostics, surveillance and disease management, could offer a better approach than stamping out alone. ■



French poultry producers fear that culling and having to leave houses empty will see poultry production contract by close to 10% this year.

Chameleonseye | iStock.com



# UK free range egg production increasingly unsustainable

The average U.K. free range egg producer is losing significant amounts of money, and fears are growing of shortages on the shelves.

MARK CLEMENTS

**A** typical free range egg farm in the U.K. is on course to lose more than GBP300,000 (US\$382,000) per flock, as the cost of feed, electricity, labor and other inputs continues at record levels.

Farmers are thought to be losing almost GBP10 per hen, according to data published by consultants ADAS in October.

ADAS puts the total average cost of a flock of 32,000 laying hens at GBP1.24 million, with average income from egg sales

bringing in only GBP921,000.

Approximately 64% of the 11.3 billion eggs produced in the U.K. each year are free range and, at retail level, they now account for 70% of all eggs sold, according to data published by industry body the British Egg Industry Council. A contraction in the free-range sector could impact the availability of locally produced eggs and see imports increase.

Some producers have already ceased production

and, according to Robert Gooch, chief executive officer of the British Free Range Egg Association (BFREPA), the whole industry now needs to work together to fix the broken market.

“It is of the upmost importance that we do everything we can do to bring about positive change in the industry, so that producers receive the support and success that they need,” he said.

## United action needed

To this end, earlier this year, BFREPA launched the Egg Pledge, which aims to unite the sector behind a commitment to work together for a better, more sustainable future. BFREPA is urging all businesses involved in free range egg production to sign it.

The pledge was initiated following campaigning for a fair deal for farmers hit by rocketing production costs. At its launch, in late September, Gooch noted that farmers had seen their feed costs rise by 50% and that many

While U.K. supermarkets have been charging consumers more for eggs, not enough is finding its way back to producers to remain profitable, warns the country's free range egg industry association. *HUNG CHIN LIU | Shutterstock.com*



had seen their total bills increase by tens of thousands of pounds

As well as calling on producers to sign the pledge, BFREPA has been approaching packers and retailers to garner their support, but the latter have not been that forthcoming. However, with multiples and discounters accounting for almost 87% of egg sales to consumers in the U.K., their support is essential.

Gooch noted that egg producers had seen small rises in the price paid for their eggs, but nowhere near enough for their businesses to be sustainable.

In July the association

revealed that U.K. consumers were typically paying GBP0.20 more for a dozen free range eggs, but that only GBP0.04 was reaching producers. At that time, it was suggested that producers needed to receive at least GBP0.40 if parts of the industry were not to cease production.

Some retailers have committed to not importing cheaper eggs, but Gooch noted that supermarkets had been unresponsive to the suggestion of higher payments and warned that, within six to nine months, there could be a shortage of U.K. free range eggs.

The industry predicts that both



**U.K. egg industry in crisis as input costs soar**

[www.WATTAgNet.com/articles/44916](http://www.WATTAgNet.com/articles/44916)

production costs and demand for eggs will continue to increase over the winter months, making the industry increasingly unsustainable and causing many more farms to suffer as the crisis continues. ■



# LUBING

OPTIMAL WATER SUPPLY

## WORLD-LEADING DRINKING-SYSTEMS

Innovative developments and perfection – LUBING Drinking-Systems stand for:

- exceptional quality and reliability
- perfectly harmonized system components
- excellent performance due to state-of-the-art technology with trendsetting functionality
- easy functional expansion with innovative accessories – up to fully automatic operation

Information on all **LUBING** Drinking-, Climate- and Conveyor-Systems at [LUBING.COM](http://LUBING.COM)

# How poultry production can adapt to **climate change**



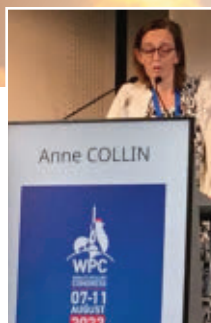
Poultry production will need to adapt to climate change's emerging challenges. Thankfully, there are numerous approaches that could offer solutions.

MARK CLEMENTS

**T**he poultry industry will need to increasingly adapt if it is to survive and flourish in the face of the emerging challenges resulting from climate change.

Production will need change at bird level, for example by increasing genetic resistance, and at farm level, with solutions that counter the changing geographic range of diseases, or to reduce energy use and greenhouse gas emissions.

Numerous adaptations are already being examined. New ways of working, however, will also need to take into account the One Health concept and animal welfare, and will also need to limit competition between demands for human and animal food in the face of less favorable climatic conditions.



**INRAE's Anne Collin noted that climate change threats to the poultry industry were increasing, but that numerous avenues were being**

**explored to help the sector adapt.** *Mark Clements*

The issues facing the industry were discussed by Anne Collin, of the French National Institute for Agriculture, Food and Environment (INRAE), at the World's Poultry Congress, held in Paris in August 2022. Solutions discussed ranged from adapting birds and diets, to building design and energy saving.



**Production, quality and efficiency are all compromised when birds suffer heat stress. Birds that are better able to cope with higher temperatures would be one solution to overcome this issue.**

*lamyai | Shutterstock.com*

## Making birds more able to adapt

Today's broilers and layers are more susceptible to heat stress, which can compromise production, quality and efficiency and, as temperatures rise, the problem will become more common.

A way of addressing this could be to improve genetics, introducing adaptive traits in selection programs and building resilience through early heat acclimation strategies.

Research is ongoing to find genetic solutions to improve resistance to heat stress. Studies in both broilers and layers have examined the effects of genes involved in feather coverage and quality. The naked neck, scaleless and frizzle genes have been studied as ways of reducing feather coverage and increasing surface heat dissipation, enabling birds to better cope with higher temperatures.

Application of this approach, however, has been limited, probably due to the difficulty of introgressing a mutation into commercial poultry lines without affecting their genetic value, and by the likelihood of consumers rejecting products coming from partially-feathered, or unfeathered, birds.

Another way to improve birds' thermoregulatory abilities would be through thermal manipulation, an early phenotype programming strategy comprising cyclic increases in egg incubation temperature and resulting in an altered physiological response after hatching.

Cyclic increases in incubation temperature, mimicking the fluctuating conditions found in nature, have been found to improve thermal tolerance in male broilers, while minimizing hatching defects.

For thermal manipulation to be successful, cyclicality and temperature increases, however, must be carefully controlled. If temperatures are raised during early embryo development, or constantly higher temperatures are used, hatching defects may become more common.

Incubator humidity must also be raised during higher temperatures to prevent dehydration, and factors including breeding age and genetics can also influence the procedure's success. The fine tuning needed to successfully carry out thermal manipulation may explain why this otherwise simple procedure is not currently more widely used.

## Resistance to cold

Making birds more resistant to cold would be particularly beneficial when birds are young and energy expenditure on heating is highest.

In experimental facilities, decreasing temperature at placement from 32 C to 28 C has been

shown to lower gas use by 11%; however, electricity use for ventilation rose by 4%.

**Sustainable poultry production driving industry advances**

[www.WATTAgNet.com/articles/31349](http://www.WATTAgNet.com/articles/31349)

Birds can be made more resistant to cold through cold embryo stimulation immediately prior to hatching. This was found to have a positive effect on male chicken performance, even in a cold starting environment; however, the results for females were less positive, and some welfare parameters were not met.

The implementation of such a strategy would need to be carefully fine-tuned and tested against multiple criteria before being applied to commercial production.

## Making savings, reducing energy

Using cooling pads or fogging and misting systems in closed poultry houses during hot periods requires both water and energy, and several alternative methods are already under examination.

A bird's temperature can be reduced by, for example, sprinkling it with coarse water droplets. In this way evaporative heat loss occurs directly from the bird's surface.

Other studies have looked at optimizing ventilation and regulating air velocity in response to ambient temperatures.

IPPE  
IPPE  
IPPE  
IPPE  
IPPE  
IPPE  
IPPE

# IPPE CREATES NEW EXPERIENCES

Let the 2023 IPPE create new experiences for you with thousands of animal food, meat and poultry industry professionals. Don't miss your opportunity to connect at this powerhouse of a show in January!

[ippexpo.org](http://ippexpo.org)

 INTERNATIONAL  
**IPPE**<sup>®</sup>  
PRODUCTION & PROCESSING EXPO

JAN. 24 - 26, 2023  
ATLANTA, GA USA

## HOW POULTRY PRODUCTION CAN ADAPT TO CLIMATE CHANGE

Conventional broiler houses could limit energy use by installing more efficient heating systems. Air exchangers, for example, that recover heat from exhaust air to warm incoming air result in considerable energy savings.

Poultry houses should be insulated to better regulate temperature, and fine tuning the environment to limit the energy needed for heating, keeping ammonia levels low, and maintaining the litter as dry as possible are all beneficial.

The microclimate around the building will be impacted by its orientation. The microclimate can also be influenced through tree planting or erecting wind brakes to create shadow and limit air temperature when birds are reared free-range.

### Climate change, disease and health

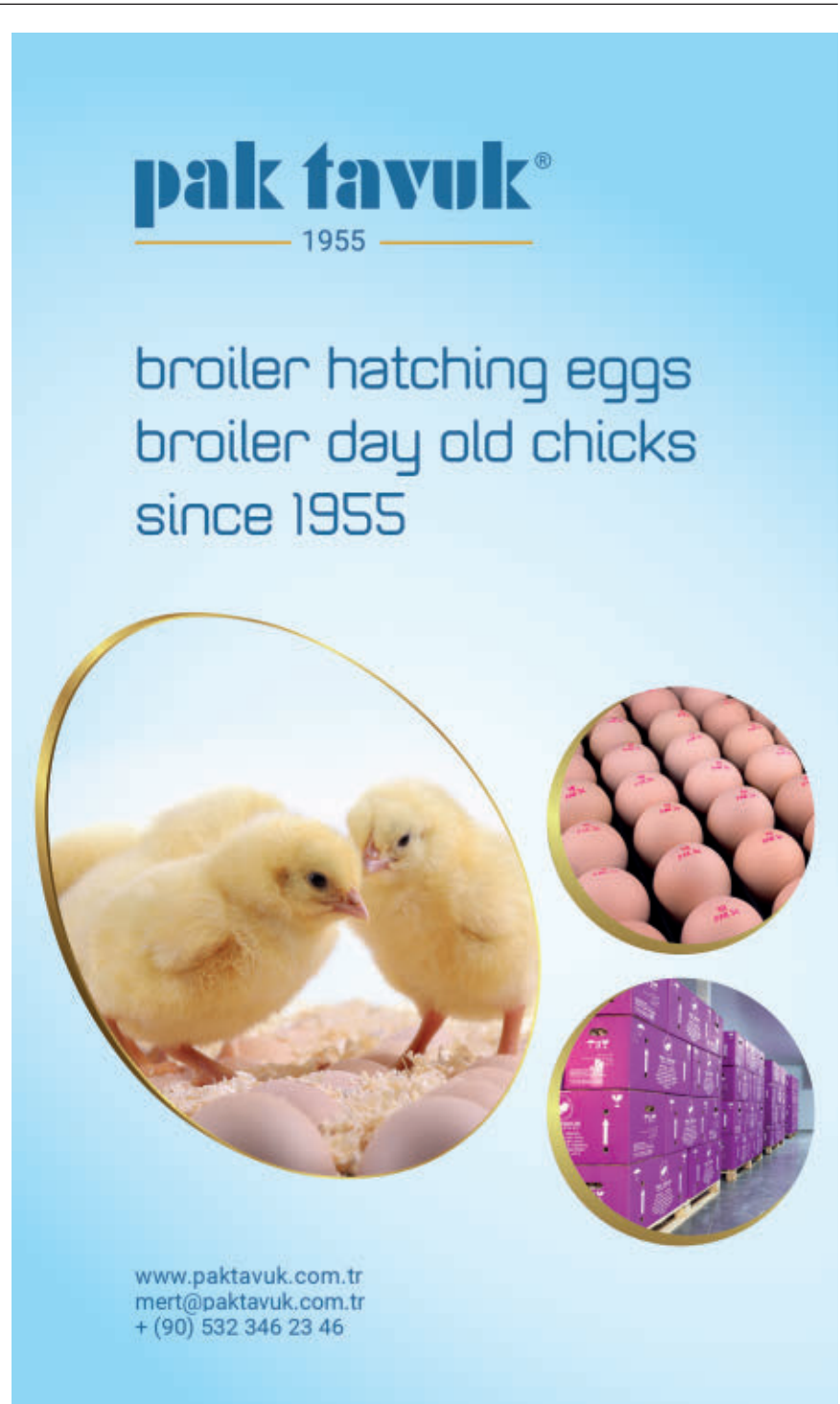
Climate change may result in the entry of pests and disease into areas where they were not previously present.

The incidence of avian influenza (AI) in Europe, for example, has increased dramatically over the last couple of years. This could continue as birds change their migratory paths, and vaccination may become necessary if mass slaughter is to be avoided.

Climate change, combined with the popularity of backyard poultry farming, could provide the ideal situation for a greater incidence of avian mite infestation in Asia, particularly

as the local industry expands. Tropical Poultry Mites may act as vectors for other disease, making their spread a threat to both human

and animal health. Greater resistance to acaricides may mean that plant extracts, light regimens and gas may be needed for their control. ■



**pak tavuk®**  
1955

broiler hatching eggs  
broiler day old chicks  
since 1955

[www.paktavuk.com.tr](http://www.paktavuk.com.tr)  
[mert@paktavuk.com.tr](mailto:mert@paktavuk.com.tr)  
+ (90) 532 346 23 46





# Avícola Brazil, one of the most sustainable poultry producers

With strict legislation governing land and resource use, sustainability is inherent in the Brazilian poultry industry.

BENJAMÍN RUIZ



**Agricultural producers must leave a percentage of their land untouched.**

*Courtesy ABPA.*



**Ricardo Santin, Chief Executive Officer of the Brazilian Association of Animal Protein points**

**out that the Brazilian poultry industry has no need to engage in deforestation; it has found plenty of other ways to raise output.** *Benjamín Ruiz*

**B**razil is one of the most sustainable poultry producers in the world. It may not be the most sustainable, but it has learned from others how it needs to produce.

Brazil's image, however, has been damaged by concerns about the Amazon, despite almost all Brazilian chicken meat production taking place outside of the Amazon biome. Around 80% of Brazilian chicken production comes from the south and southeast of the

country, parts of the country that are the most developed.

Despite this, there is continuous talk of deforestation, and no mention of how many millions of square kilometers of virgin forest remain — 66% of the national territory. The animal protein industry is often blamed for deforestation, but it really should not be.

## Sustainability in industry's DNA

Ricardo Santin, chief executive officer of the Brazilian Association of Animal Protein (ABPA), stresses that producers are against illegal deforestation.

“Neither the Brazilian government, nor poultry producers encourage deforestation,” he says, adding that production cannot even start without complying with some of the strictest sustainability regulations in the world.

Feeding the world's growing population is not

## Brazilian poultry industry key data

- Third largest poultry meat producer in the world and largest exporter
- 2021 poultry meat production: 14.3 million metric tons (mmt)
- 2021 poultry meat exports: 4.6 mmt
- Brazilian chicken and pork sold in 150 countries around the world
- 40 days is the time taken to produce a standard 2.4 kg chicken
- Feed conversion ratio (FCR) of 1.6

easy while acting sustainably, but acting sustainably is, nevertheless, essential. As the world's third-largest chicken producer and its largest exporter, sustainability is embedded in the DNA of the poultry production chain, Santin explains.

Nevertheless, the Brazilian poultry industry is continually questioned over its sustainability and the links that the media and other organizations make between it and the illegal deforestation in the Amazon.

Santin emphasizes that some have jumped on press reports without considering the facts, and that the Brazilian government has responded poorly when this has happened. There are also organizations and countries that have taken advantage of the fact that there are always fires in the summer, such as those that have occurred in Spain and Portugal, among others, ignoring that this is a natural phenomenon.

### Protecting the Amazon

Brazil has 66.3% of its territory, or 851 million hectares, covered in virgin forest. Over the last 20 years, the country has protected 4.19 million km<sup>2</sup> Amazon forest. In contrast, according to data collected by ABPA, Central America has only 9.7% of its territory covered in virgin forest, while in Europe this figure falls to 0.3%.

While there may be talk of, for example, deforestation of up to 12,000 km<sup>2</sup>, this is a small amount compared to what is untouched. Illegal deforestation exists, but it is being pursued.

"There are always people who break the law," Santin says, "but that doesn't mean that the whole country

does, and neither is this encouraged by the poultry industry. We are against deforestation."

According to data from the Brazilian Agricultural Research Corporation (EMBRAPA), areas for arable and livestock production on rural properties account for 30.2% of the national territory. Of this percentage, 13.2% is planted grasslands, 9% planted crops and forests, and 8% native pasture.

25.6% of Brazil's virgin forest is on private land. Legislation dictates that, if land is purchased in the south of the country, 20% must be excluded from production. In the center of the country the percentage rises to 40%, while in the north, the Amazon, this rises to 80%. If a landowner exploits this virgin vegetation, prosecution will follow. Given this strict legislation, Brazil's poultry producers are able to argue that they are preserving the country's native vegetation.

### Ever more sustainable

Brazil's climate is perfect for agricultural and livestock production, with an average year-round temperature of 25 C. This gives the sector a significant advantage, both in terms of production costs and health status. Broilers and eggs can be produced without the intensive use of energy.

In addition to this natural advantage, productivity in Brazil has skyrocketed. The adoption of new technologies, increased productivity and conservation initiatives have made the agricultural sector more sustainable. For example, since the 1970s, grain production per hectare has increased fourfold to now stand at 4,000 kg, while the land area cultivated for grain production has less than doubled. Extensive grasslands have been converted to crop production.

"This is how Brazil increases its productivity; you don't need to deforest any more areas," Santin explains. ■

---

*Benjamín Ruiz, former editor of Industria Avícola, is an international poultry and feed journalist and translator, focused on Latin America.*



**Why Brazilian poultry may help local markets, environment**

[www.WATTAgNet.com/articles/29545](http://www.WATTAgNet.com/articles/29545)

# 2023 IPPE to deliver innovative technology, meet learning goals

The annual flagship event will showcase the newest research and innovative technologies, with focus on food safety, plant operations, sustainability and other current industry topics

ANDREA GANTZ

**T**he International Production & Processing Expo (IPPE) continues to evolve and grow to meet the needs of its attendees and exhibitors, creating new experiences, delivering innovative technology and meeting the learning goals of the poultry, meat and animal food industries.

IPPE will welcome a global audience January 24-26, 2023, in Atlanta to showcase the newest solutions, technologies, research, processes, services and products from the global animal food and protein industries.

As the annual flagship event for the meat, poultry and feed industries, IPPE offers the largest variety of education and interactive exhibits for everyone from feed to fork. Attendees include representatives including operation and plant managers, purchasing agents, engineers, and researchers from the world's top feed, meat processing and packing and poultry companies.

IPPE is a collaboration of three integrated trade shows — International Feed Expo, International Meat Expo and the International Poultry Expo — representing the entire chain of protein production and processing. The event is sponsored by the American Feed Industry Association (AFIA), North American Meat Institute (NAMI) and U.S. Poultry & Egg Association (USPOULTRY).

## At the 2023 IPPE

With an anticipated 500,000-plus square feet of exhibits showcasing the newest and most innovative products and services for the poultry and egg, meat and animal food industries, IPPE 2023 is expected to bring thousands of industry leaders from more than 110 countries.

**January 24-26, 2023**

- ▶ Georgia World Congress Center
- ▶ Atlanta, Georgia, USA
- ▶ [www.ippexpo.org](http://www.ippexpo.org)

IPPE

This year, IPPE will feature more than 80 hours of educational workshops such as the International Poultry Scientific Forum (IPSF), Latin American Poultry Summit (LAPS), Pet Food Conference and the International Rendering Symposium. The 2023 IPPE will also include new educational programs, including the Foreign Material Prevention & Control Workshop. A complete schedule of programs is available at [ippexpo.org](http://ippexpo.org) and in the WATT IPPE Directory, available digitally in November and in print at the show.

In addition to the free and paid educational program, TECHTalk theaters on the expo floor in Building B and Building C will again be the stage for exhibitors to present technical talks on a variety of topics, from sustainability to process efficiencies to technology. Plus, a new product showcase that includes exhibitor video submissions on the newest technology or services will be on display in the BC-Hall.

Also in 2023, the International Poultry Expo is celebrating 75 years of trade show excellence to the poultry and egg industries. Sponsored by USPOULTRY, the first poultry convention was attended by 200 poultry leaders in Atlanta in 1948, with suppliers exhibiting in the halls of the convention hotel in the early years. From there, the event began its run of steadily growing and expanding year-after-year to become what is today's annual International Poultry Expo. ■



# LA CUMBRE AVÍCOLA LATINOAMERICANA

Jan. 23, 2022  
Atlanta, GA USA!

Join your fellow poultry professionals from across Latin America for the 2023 Latin American Poultry Summit, to discuss the role of poultry farming in helping to address the food, social and economic realities of Latin America. This elite event, held in conjunction with the International Production & Processing Expo (IPPE), features a stellar lineup of researchers, scientists, business leaders and poultry industry experts who will present information to strengthen your position in this key sector of the global poultry industry.

*Don't miss out on early bird pricing. Register today!*

Register at [ippexpo.org](http://ippexpo.org).

More information at [lacumbreavicolalatinoamericana.org](http://lacumbreavicolalatinoamericana.org).



[/CumbreAvicoLATAM](https://www.facebook.com/CumbreAvicoLATAM)

[@lapsIPPE](https://www.instagram.com/lapsIPPE)

Supporting partner:



In collaboration with:

USPOULTRY  
U.S. POULTRY & EGG ASSOCIATION



**GUEST EDITORIAL** BY VINCENT GUYONNET, DVM, PH.D.



# Education key for sustainable poultry and egg sector

Education not only helps to raise the poultry sector's productivity, but its application can help to ensure that production is more sustainable.



**Since 2014, the WVEPAH has offered training to production animal health specialists around the globe.** *Courtesy WVEPAH.*

**E**ducation is the best passport to the future, and this is as true for the poultry and egg sectors as it is for any other. However, in today's fast changing world, it is not simply a question of learning basics — there is a constant need to upgrade and hone our skills to keep up to date with the latest advances and market developments.

Think, for example, of changing consumer demands and the resulting antibiotic-free production or social pressures calling for production to be more sustainable. There are also ethical issues that have come to the fore, such as the culling of male day-old chicks, and new developments in vaccination, health and nutrition.

Access to the most recent and accurate information is key to feeding our birds the best possible diets with the minimum impact on the environment, while also preventing disease and reducing mortality.

For many of us, there are numerous and

ever-evolving resources available. Think, for example, of the boom in free webinars, often sponsored by private sector companies, which offer opportunities welcomed by us all.

The benefits of investing in education have been repeatedly proved, but not everyone has the same opportunities to learn and apply the latest thinking to managing their flocks.

## Basis for progress

In many countries, poultry managers only receive hands-on training, with guidance simply coming from older peers with knowledge often gained simply by trial and error. This can also be the case for veterinarians, despite being key stakeholders in poultry production, and who we rely on to help us safeguard our birds' health and welfare.

For almost a decade now, there has been a new way that those involved in the livestock sector can gain access to the most up-to-date information needed to perform their role.

World Veterinary Education in Production Animal Health (WVEPAH) was established in 2014 to train production animal health specialists. With diplomas delivered by Canada's University of Montreal and a curriculum, including all aspects related to regulations and disease control, recognized by the World Organization for Animal Health (WOAH), this non-profit organization offers specializations in the key

poultry species, that is broilers and breeder birds, commercial layers, turkeys, and waterfowl.

While the WVEPAH had to offer its courses online during the COVID-19 pandemic, the program was designed to bring global participants together at one location, offering practical sessions such as post-mortem examinations or farm visits, as well as time to share problematic clinical cases and experiences.

Since 2014, the program has certified poultry experts from countries in Africa, Latin America, Asia and even Europe, where no dedicated poultry programs are offered to veterinarians.

## Are shell egg exports a viable option to feed the world?

[www.WATTAgNet.com/articles/45822](http://www.WATTAgNet.com/articles/45822)

With lectures offered by a team of global experts from academia or the private sector in English, French or Spanish, this program is a welcome resource to train veterinarians to better support the global poultry and egg sectors.

During the pandemic, a number of scientific and technical publications switched temporarily or permanently to Open Access publication, making new findings more easily accessible to the poultry sector. Many organizations, including WATT Global Media, are offering, free of charge, more webinars on a wide range of topics, contributing also to better dissemination of technical information.

Acquiring more knowledge and skills not only improves management practices and production, ultimately leading to more successful businesses and higher incomes, but also helps to reduce hunger, improve food security and, ultimately, helps to create a more sustainable poultry and egg sector. ■

*Vincent Guyonnet, DVM, Ph.D., is a consultant to the poultry sector with a focus on international development.*



**OVOCONCEPT**  
AROUND THE EGG

## For over 30 years, Ovoconcept

has offered innovative efficient solutions for their customers whether egg producers, packing stations or egg processing plants worldwide.

- Palletizing robots
- Depalletizing robots
- Cases-displays-bulkers filling robots
- End of line OVOPAL case palletizer
- OVOMULTICASER robot cell to handle production of bulk cases
- Conveyors for finished products
- Plastic tray washers and plastic pallet washers
- Automation of washing operations for the all-plastic concept  
(Tray washer & plastic pallet washer loading robots - washer outlet robot for "farmer kits")

**MORE THAN 250 OVOCONCEPT ROBOTS ACROSS EUROPE HAVE ENABLED TO CUT COSTS AND INCREASE PRODUCTION EFFICIENCY.**

35, avenue des Châtelets • Z.I. 22440 Ploufragan • FRANCE  
T. (33)2 96 765 765 • F. (33)2 96 765 110

E-mail : [contact@ovoconcept.fr](mailto:contact@ovoconcept.fr)

**[www.ovoconcept.eu](http://www.ovoconcept.eu)**



See Ovoconcept's **ROBOTICS SOLUTIONS** on the schematic layout  
On our website







# Broiler breeder roosters, hens and eggs get an energy boost

BY LUKAS BAUER, EVONIK ANIMAL NUTRITION

**In broiler production, productivity and efficiency is of utmost importance. Here we examine the key factors that impact egg fertility and hatchability of broiler breeders and how to improve those performance parameters.**

In broiler production, productivity and efficiency is of utmost importance. Here we examine the key factors that impact egg fertility and hatchability of broiler breeders and how to improve those performance parameters.

A steady supply of day-old chicks requires high egg fertility and hatchability. But producers must face a decline in laying performance, fertility and hatchability of eggs starting at around 40 weeks of age. By this time, the breeder hen needs more frequent mating to sustain high fertility while at the same time, the rooster tends to be less interested in mating leading to the need for management strategies, such as introducing more male broiler breeders into a flock, known as spiking.

But the path to a marketable day-old chick doesn't end there. A fertilised egg can fail to hatch because of a range of factors, such as lethal genes, insufficient nutrients and poor conditions that do not meet the needs of the developing embryo. So, what can help to improve a chick's chances of survival?

On the nutritional side - supplementing broiler feed with guanidinoacetic acid (GAA), a

precursor of creatine, has been found to be an effective way of boosting fertility of roosters and hatchability of eggs.

## Why is creatine important?

Creatine plays a vital role in cellular energy metabolism. It acts as a battery as well as an energy transporter, mainly in muscle tissue but also for all cells.

Creatine stores and carries energy in the form of creatine phosphate that can regenerate the levels of adenosine triphosphate (ATP), the universal supplier of energy in cells, at times of high energy demand. This means it can store and mobilize energy when required at short notice, particularly in muscle cells.

Adding GAA to poultry feed improves sperm quality in roosters, energy metabolism in breeder hens and significantly increases levels of creatine in the egg. Those physiological improvements lead to increased number of fertile eggs, persistency in laying rate, better embryo development and hatching rate, respectively.

The raw materials in poultry feed are a source of energy but are often unable to supply

sufficient levels of creatine. Plant protein sources do not contain any creatine, while animal protein sources have very variable amounts of it.

## How do you get more creatine into the egg?

In the body, creatine is formed by de novo synthesis through methylation of GAA, which itself is formed from the amino acids, glycine and arginine. However, it is estimated that in modern broiler genetics only about two-thirds of the daily need for creatine is covered by the body's own synthesis. The rest must be supplied by addition to the feed.

In the initial stages after fertilization, maternal reserves of GAA and creatine are secreted into the newly formed egg. But these soon become depleted. Then, as the embryo grows, the levels of GAA and creatine grow in tandem with its muscle tissue.

Hatching requires a lot of energy, so a chick is likely to die if insufficient energy reserves are available. Adding GAA is therefore important in ensuring hatchability as it increases the level of creatine and creatine phosphate to supply the chick developing

inside the egg with energy, thus improving its chances of survival.

GuanAMINO® is an innovative feed supplement from Evonik that can provide farm animals with sufficient dietary levels of guanidinoacetic acid (GAA), the natural metabolic precursor to creatine. In fact, studies show that GuanAMINO® supplementation leads to even higher creatine levels in the birds compared with direct creatine supplementation.

## What do results show?

### Roosters

It's not something they crow about, but common problems afflicting broiler breeder roosters are reduced mating frequency, decreased semen quality and poor fertility rates. Semen quality decrease is associated with dysfunction of Sertoli cells and defective spermatogenesis. Creatine plays an important role in the proper functioning of Sertoli cells and energy metabolism in sperm.

To study the impact of GAA supplementation, 20 broiler breeder roosters (Ross 308) at 29 weeks-old were randomly allotted to four treatment groups and fed diets supplemented with different levels of GAA, including 0 (GAA-0), 600 (GAA-600), 1200 (GAA-1200), and 1800 (GAA-1800) mg GAA/kg of diet for 26 successive weeks (Tapeh et al., 2016).

During a 24-week period, the seminal characteristics were evaluated weekly. At the

end of the trial, sperm penetration and fertility rates were determined, using 68 artificially inseminated age-matched broiler breeder hens of the same strain (for two weeks).

The study concluded that dietary GAA was associated with improvement in most of the rooster's seminal characteristics and fertility rate, suggesting a potential for using GAA to attenuate the age-related sub-fertility in commercial broiler breeder roosters.

### Hens, eggs and chicks

In a study by Reicher et al., 2020, broiler breeder hen diets were supplemented with GAA. It showed that feeding the hens with 0.15 per cent GAA elevated the creatine levels in the egg. Higher creatine levels in the egg provided improved potential for embryo development and hatchling quality.

Significantly higher levels of creatine were found in the albumen, yolk and total egg of the 0.15 per cent group, compared to the control group. Adding 0.15 per cent GAA to the broiler breeder diet for 11 weeks raised the creatine levels in their eggs by 43.2 per cent by week 37, 41.9 per cent by week 58 and 92.2 per cent by week 64.

Another study by Araujo et al. (2013) tested the effects of GAA supplementation on the performance of broiler breeders and their progeny. The progenies trial included 360 one-day old male broiler chickens hatched from broiler breeders which were fed with different levels of GAA. They were randomly

allocated to five treatments (0.00 per cent; 0.04 per cent; 0.08 per cent; 0.12 per cent; 0.16 per cent GAA in breeder diet) and six replicates with 12 birds per replicate and fed a basal corn-soybean meal diet during the fattening period.

Their performance was measured on day 21 and 42, with carcass measurements on day 42 (three birds per pen). GAA supplementation was shown to significantly improve the hatchability and fertility of eggs in broiler breeders. As for the progenies trial, the feed conversion improved by up to 17 points in the 0.08 per cent treatment group.

Furthermore, a 2014 trial with a large integrator in Argentina conducted on Arbor Acres Plus breeders (25,604 females at 42 weeks of age and 3,101 males) in three barns (barn 1 and 2 = control; barn 3 = GAA) examined the effects of GAA on the reproductive traits of broiler breeders under field production conditions.

Again, fertility and hatchability improved with GAA supplementation. Although total feed cost increased, the income over feed cost increased, giving a high return on investment on the GAA usage.

Another effect of adding GAA which was not considered economically was a reduction in mortality rate of breeder hens during the 18-week trial phase - 1.43 percent (GAA) vs. 2.88 percent (control).



## Conclusion

Results clearly indicate that GAA supplementation in broiler breeder feed increases fertility in roosters and improves the creatine levels in the breeder hens' metabolism, which significantly improves creatine levels in hatching eggs, as well as increasing hatching rates and growth performance of broiler progeny.

The boost in creatine levels and its subsequent effects is not just good for the health and wellbeing of the hen, embryo and chick. It also leads to a boost in production, bringing higher returns for the producer and thus, profitability for the farm. Ultimately, it gives producers greater confidence in the economical sustainability of their operation.

# Aviagen feed mill raises the bar on biosecurity

Isolation in Pikeville, Tennessee, separate production buildings and cutting-edge automation elevate global poultry breeder to the next level of pathogen control.

ELISE SCHAFFER





**N**estled deep in the pine-tree covered hills of Tennessee lies one of the most biosecure feed processing plants in the world.

Protected by a tall chain-link fence studded with security cameras around the building's perimeter, no rail access and nearly no visitors allowed inside, one might wonder what's hiding inside the Pikeville, Tennessee, feed mill.

But the answer is no secret. Huntsville, Alabama-based Aviagen, one of the world's leading poultry breeding stock companies, produces feed there for its own farms across three southeastern states.

While biosecurity is critical for all feed manufacturers, it's paramount for Aviagen.

"As a global poultry breeder, we understand the downstream effects of our breeding program, and take seriously our responsibility to keep harmful pathogens out of the food chain," says Richard Obermeyer, director of feed production, Aviagen. "Pathogen control begins with biosecurity, and our biosecurity, veterinary care, and health monitoring procedures are second to none."

Eliminating biohazards from its newest feed mill was Aviagen's guiding principle for everything from siting the mill and designing its layout to selecting the manufacturing equipment and cutting-edge automation, to developing its operating and pathogen detection procedures.

The 156,000-ton/year feed processing plant is

## ▶ By the numbers:

Aviagen feed processing plant, Pikeville, Tennessee

**156,000**

Annual production capacity in tons

**80,000 bushels**

Grain storage capacity

**1,000 tons**

Finished feed storage capacity

**3 states served**

Tennessee, Alabama, Georgia

**16 total employees**

For a tour of the Aviagen Pikeville, Tennessee, feed processing plant, go to

[Youtube.com/watch?v=7fxpOT0aNyE](https://www.youtube.com/watch?v=7fxpOT0aNyE)



**Aviagen strategically spread out the steel buildings for ingredient receiving, batching, processing and loadout to reduce the risk of cross-contamination between operations at its new Pikeville, Tennessee, feed plant. A video tour on YouTube offers a glimpse into the plant's biosecure control room and describes the extra measures taken to control the movement of people, traffic and air onsite.** *YouTube*

## RAISING THE BAR ON BIOSECURITY



**Top left:** To reduce foot traffic to the obtained side, there are no pellet mill controls inside the pelleting building, which houses a 30-ton/hour CPM pellet mill and a 10-ton/hour CPM pellet mill. **Top right:** A WL Port-Land Systems lorry scale, controlled from the production office using video monitors and CPM Automation controls, weighs and loads feed into biosecure Aviagen trucks for delivery. **Left:** Dust is collected throughout the facility with baghouses and at all product flow transitions with Bühler spot filters.

*Courtesy Aviagen*

ideally located to prevent contamination and allows the growing company to carry out its mission to supply the highest quality broiler breeding stock in the world.

### Isolated setting offers perfect feed facility location

Global market growth during the past decade drove Aviagen's need for additional feed production capacity. In 2020, the feed production team, along with engineer/contractor WL Port-Land Systems Inc., began plans to build a greenfield feed manufacturing plant.

Reasons for siting the new facility in Pikeville

include its proximity to local grain and Aviagen's poultry production base — reducing hauling distance from mill to farm — while being far enough away from other potentially pathogen carrying poultry or livestock operations. The wooded terrain also offers a natural buffer from public crowds and residential traffic.

Groundbreaking on the site took place on July 20, 2020, and the construction of four specially designed steel structures, including 80,000 bushels of grain storage, went on for nearly two years. The Pikeville mill produced its first batch of feed in March 2022.

“WL Port-Land was amazing,” Obermeyer says.

“They did a fantastic job keeping us on schedule throughout COVID despite supply chain delays by shifting delivery schedules and working with the product they had on hand whenever possible.”

## Separating operations to reduce pathogenic spread

The plant’s biosecure design is modeled after Aviagen’s feed processing locations in Athens, Alabama, and Sallisaw, Oklahoma, with slight modifications and more distance between operations to further enhance biosecurity.

Operations are split into two distinct sections: the unobtained or “dirty side” and the obtained or “clean side.” The facility layout consists of four individual steel-walled structures with various functions:

1. A corn, soy and ingredient receiving building with 80,000 bushels of grain storage. This includes a single dump pit receiving system rated at 100 tons/hour.
2. The grinding, mixing and batching building, including an area for sealed ingredient storage bins.
3. A mash heating, pelleting and cooling building.
4. The finished feed loadout area.

The first two and part of the third buildings are considered unobtained. After feed is sanitized with a conditioning thermal treatment system, it reaches obtained status.

The obtained area and the finished feed loadout building can only be accessed by authorized employees after showering and donning company-issued clothes.

To reduce the risk of feed contamination from the outside, fencing serves as a barrier around the entire multistructured feed mill.

“The idea of physically separating operations stems from controlling ‘people flow,’” Obermeyer says. “How we separate the movement of people on foot around the facility and how we handle truck traffic are practices we’ve learned from 23 years of producing biosecure feed in the U.S.”

Aviagen separates not only processes and people at

its feed production plants, but also closely controls the air movement. The plant constantly filters the air with state-of-the-art equipment and each production stage has its own ventilation and HEPA filtration system. Meanwhile, spot filters are installed at each transition point along the conveying equipment and a vacuum system eliminates airborne dust.

## Feed production and processing

To limit exposure to pathogens in transit, nearly all ingredients are locally sourced and are exclusively delivered by truck. Incoming traffic is monitored with closed-circuit cameras while signage assists with traffic flow.

At receiving, the ingredients are unloaded from delivery trucks through an enclosed chute to prevent dust from spilling out. Then, moving along a 200-ton/hour GSI elevator leg, the ingredients are routed to storage.

A CPM hammermill grinds the corn and it proceeds to the batching tower, featuring 21 bins and 48,000 cubic feet of ingredient storage. Ingredients are mixed with a Hayes & Stolz double-ribbon mixer and liquid ingredients and microingredients are introduced directly to the mixer.

A CPM hot start conditioner uses boiler steam to hygeinise the feed and holds it for the prescribed time to eliminate pathogens. Post-sanitization, feed may be cooled as mash or conveyed to either a 30-ton/hour pellet line or a 10-ton/hour pellet line and is finally cooled to remove excess heat and moisture.

Pellets may be left as is or crumbled, depending on the age of the flock it will feed. The pellets or crumble then go through an EBM screener to sift out unwanted material.

Finished feed awaits shipment sealed inside 29 bins for a total of 1,000 tons of storage capacity. Once ready for delivery to a flock, the feed is weighed and loaded with a WL Port-Land Systems lorry scale into Aviagen’s biosecure feed trucks, which are carefully maintained and washed regularly.

“The loadout building is a controlled area and the loading process is done with cameras and automation remotely,” Obermeyer says. “The operator controls it



## RAISING THE BAR ON BIOSECURITY

## ▶ Is lights out the future of feed milling?

Aviagen, a global poultry breeder and pioneer in biosecure feed production, uses advanced automation, closed circuit cameras and a central production office to remotely control critical operations at its Pikeville, Tennessee, feed mill. Referred to as lights out manufacturing, it keeps employees out of the pelleting and loadout areas to prevent contaminating feed with harmful pathogens like *Salmonella*.

“Processes that can be completely lights out today include grinding and batching,” says Richard Obermeyer, director of feed production, Aviagen. “I’m in favor of lights out manufacturing for its ability to operate effectively without anybody inside the feed mill. I think that’s where the future is headed, and I’d say we’re close, but some processes are not quite there.”

For more on Obermeyer’s predictions for lights out feed manufacturing, visit <https://bit.ly/3TzhtPx> and watch his exclusive interview for **Feed & Grain Chat!**



from the production office. The truck driver must stay inside the truck at all times when in the loading area.”

### Automation aids with feed biosecurity

To simplify operations and improve efficiency, the processing facility is automated by CPM Automation.

All mixing, batching, pelleting and loadout operation automation is overseen from a centralized biosecure control room. Before entering, employees must shower and change into provided clothes. To reduce foot traffic to the obtained side, there are no pellet mill controls inside the pelleting building itself.

“The less traffic in those controlled areas, the less risk there is, so no one goes in or around the pellet mills for the entire shift,” Obermeyer says. “If we operate literally with the lights out and no one present, it greatly reduces risk. This plant is as close to lights out feed manufacturing as you can get in present times.”

### Pathogen monitoring and testing is key component

Once a week, Aviagen employees perform facility monitoring, which includes pathogenic testing on the buildings, equipment and finished feed.

“We’ve spent significant time advancing our testing techniques and procedures,” Obermeyer says. “How samples are collected and where they are taken from is paramount to the results, so our monitoring method is a critical component of biosecure feed production.”

Practices like segregating unobtained and obtained sides, restricting production area access and conducting weekly pathogen detection puts Aviagen at the forefront of biosecure feed production.

Adding cutting-edge automation and centralized process controls propels the Pikeville facility into the future with nearly lights out manufacturing capabilities. With room to expand production at the Pikeville feed plant, Aviagen is well positioned to continue serving its growing breeder stock customers for decades to come. ■

# **NEW** Feed Mill of the Future **CONFERENCE**

How efficiency, innovation and sustainability  
will shape the feed industry of tomorrow

**\$95**  
**Early Bird**  
**Registration**

Sign up and save today!

**January 24, 2023**

- ▶ Co-located with IPPE 2023
- ▶ Georgia World Congress Center

Feed Mill of the Future Conference will bring together leading feed industry experts to examine emerging feed mill technologies and processes that will impact animal feed manufacturing in the years ahead.

Learn more at [FeedMilloftheFuture.com](http://FeedMilloftheFuture.com)



**FEED MILL** OF THE  
**FUTURE**  
**CONFERENCE**  
— **FeedStrategy** and **Feed&Grain** —

The conference is organized and presented by  
Feed Strategy and Feed & Grain magazines.

Feed Mill of the Future Conference requires a separate ticket to attend, which can be purchased at the time of IPPE registration. See [www.ippexpo.org](http://www.ippexpo.org), Education Programs for details.

Antibiotic alternatives must be produced cheaply enough to be economically viable for the poultry producer. *Edwin Tan | iStock.com*

# Evaluating antibiotic alternatives for poultry production

Substances directly attacking pathogens and enhancing the animal's immune response show merit.

MARY JO DAVIS

**A**s antibiotic use falls out of favor, the global poultry industry is focused on developing commercial applications for promising alternatives.

Producers today face more regulations regarding the use of in-feed antibiotics and growing demand for raised without antibiotics (RWA) or no-antibiotics-ever (NAE) poultry. This is leading to the evaluation of alternative approaches for disease control.

Antibiotic alternatives are any substance substituting for therapeutic drugs. They come in two categories:

- Substances directly cytotoxic against infectious agents or removing pathogenic toxins, including vaccines, hyperimmune egg antibodies, anti-microbial peptides and bacteriophages.
- Substances that augment nonspecific host immunity and gut health, including phytochemicals/phytonutrients, adjuvants, organic acids, enzymes,

minerals, prebiotics and probiotics.

This article focuses on nonvaccine antibiotic alternatives.

## Direct cytotoxicity

### Hyperimmune egg yolk antibodies –

Hyperimmune, pathogen-specific antibodies can provide passive immunization. Hyperimmune egg yolk antibodies are applied via:

- Generation of egg antibodies in breeding hens, which are then transferred passively to progeny.
- Feeding chicks freeze-dried egg yolk powder from hens hyperimmunized against organisms.

Advantages of egg yolk antibodies include the ability to produce large quantities and collect them noninvasively from layer hens.

**Anti-microbial peptides –** Host-derived anti-microbial peptides are considered natural anti-microbials.

They perform broad-spectrum anti-microbial activity,



are selective to microorganisms and use different activation mechanisms.

When the correct physiological conditions are present, cationic anti-microbial peptides will disrupt the bacterial membrane of many bacteria. This includes multidrug-resistant bacterial strains.

- Anti-microbial peptides such as granulysin and NK-lysins belong to the saposin-like protein family. Granulysin acts as an immunomodulator by attracting lymphocytes and modulating the expression of chemokines and cytokines. Administration of chicken NK-lysin is shown to increase body weight and reduce gut-lesion scores.

## Immunomodulation

Immunomodulation improves a bird's resistance to microbes or other infectious agents.

Immunomodulators accelerate the natural defense mechanisms of a bird by:

- Triggering a strong and sustained immune response against disease-causing microorganisms.
- Improving maturation of specific and nonspecific immunity throughout the neonatal period and in young birds.
- Augmenting local protective immune reactions in the gastrointestinal tract and other susceptible sites.
- Enhancing the duration and level of immune response following vaccination.

The desired outcome of a successful immune response is for the bird to recognize the invading pathogen and prevent colonization.

**Nutrition** – Certain dietary supplements can alter immune function. The intestine plays a role in triggering an immune response against pathogenic microbes, while still maintaining tolerance to antigens from food. Care must be taken to achieve the correct balance between when a diet simply nourishes the host and when stimulation occurs.

Nutrition affects the immune response by releasing metabolites that enhance a cell's ability to react to pathogenic microorganisms. Preliminary studies indicate select feed additives may be used to expedite and

boost the development of early defense mechanisms to protect young chicks.

Nutrients under evaluation include:

- Addition of beta-mannanase to broiler diets results in positive changes to regulation of immune response and activation of immune response.
- Preparations of yeast cell walls that impacted performance and minimized the adverse impact of a challenge.

**Phytochemicals** – Phytochemicals are plant-derived chemicals with proven beneficial effects. These include a variety of herbs, spices, essential oils, oleoresins, flavonoids and bioactive molecules such as capsaicin and cineole.

Supplementing diets with phytochemicals improves growth performance variables, nutrient digestibility, innate immunity and host disease resistance. Adding phytochemicals alters normal gut microflora in broiler chickens and decreases the prevalence of pathogens by preventing colonization of the gastrointestinal tract.

There is also increasing evidence phytochemicals can modulate immune responses. One commercial blend of phytochemicals is approved in the European Union as a botanical feed additive for improving performance.

**Probiotics** – Probiotics, or direct-fed microbials modulate gut function and enhance intestinal health in chickens.



**Work must continue to close the gap between results in the lab and results in the field.** *Courtesy Big Dutchman*

## EVALUATING ANTIBIOTIC ALTERNATIVES FOR POULTRY PRODUCTION

A variety of bacterial species, in particular *Bacillus spp.*, are tested for use as probiotics in poultry. Some show improved performance, positive modulation of intestinal microflora and inhibition of pathogen colonization.

An ideal probiotic organism withstands processing and storage, survives in the acidic environment of the intes-



**Antibiotic alternatives can either be classified as cytotoxic agents, directly attacking pathogens or immunomodulators, which augment immune responses to pathogens and gut health.** *Courtesy Big Dutchman*

tinal tract, adheres to the epithelium and/or mucus in the intestines, produces anti-microbial compounds and modulates immune responses. Care must be taken to select the strains or combinations of strains that will achieve a maximum benefit.

**Combination approaches** – A combination of alternatives may provide better results. Many combinations result in a synergistic response providing the maximum intended effects while still providing good economic returns.

Combination strategies include combining:

- Compounds with cytotoxic and immunomodulation effects.

- Multiple prebiotic and/or probiotic strains.
- Multiple phytochemical compounds.

### Continued challenges

Nevertheless, numerous challenges remain in using antibiotic alternatives in poultry production.

First, there is not sufficient understanding of the mechanisms of action, including the relationship between the normal intestinal flora, pathogenic infections and immune responses.

Regulators and the industry must understand the appropriate, or most desired, regulatory pathways for antibiotic alternatives. Depending upon the actual marketing claim desired, the same molecule can often be registered in multiple ways by multiple agencies.

Next, alternatives must withstand the harsh environment of the intestinal tract and arrive at the desired locations without degradation. Encapsulation methods, such as lipid encapsulation, are being investigated to protect products and allow for a slower release and potential longer impact.

Moreover, products must be produced cheaply enough to be economically viable for the poultry producer. This involves identifying more economic ways to produce the alternatives, only using products at special stages of production and using microencapsulation or other methods to reduce the necessary effective dose.

The optimal stages of poultry production for application must be identified, too. For example, immunomodulation could be used *in ovo*, at hatch through the first week of life, at feed changes, prior to transport to the processing facility or during a disease outbreak.

Finally, work must continue to close the gap between results obtained in an experiment and those in the field. Many products demonstrating great potential in well controlled experiments don't necessarily provide statistically significant impacts in commercial settings. ■



How poultry gut health, welfare connect in NAE operations:  
[www.WATTAgNet.com/articles/45577](http://www.WATTAgNet.com/articles/45577)



2023 **CHICKEN  
MARKETING  
SUMMIT®**

# SAVE THE DATES

**JULY 31 – AUGUST 2, 2023**

**Hotel Effie Sandestin, Miramar Beach, Florida**

Presented by  
**WATT** GLOBAL  
MEDIA®

In collaboration with:



With support from:



➔ Learn more at: [ChickenMarketingSummit.com](https://ChickenMarketingSummit.com)



# Water consumption data can unveil poultry health secrets

The link between water, feed intake could improve broiler behavioral monitoring.

ELIZABETH DOUGHMAN

**P**oultry growers that monitor and recognize abnormal water consumption patterns could gain better insights into broiler behavior, welfare and health.

“One of the challenges we deal with when growing poultry is trying to figure out what’s happening when we’re not there,” Mike Czarick, senior public service associate, department of poultry science, University of Georgia, explained.

“We’re just always looking for information

to give us some numerical feedback as to how the birds are doing during the course of the day because we’re not going to spend 24 hours a day in the house.”

## Link between feed, water consumption in broilers

For example, during the first seven days of a chick’s life, its weight increases exponentially. Poultry growers want to closely track that

David Tadevosian | Shutterstock.com



progress. Bird weight scales are an option but can be difficult to find and expensive to obtain.

“Over the years, we’ve learned that feed and water consumption in a broiler are very closely related,” Czarick said, noting that a pound of feed consumed by a broiler approximately correlates to 1.8 pounds of water.

“If there’s a dip in water consumption, that means there’s a dip in feed consumption,” he added.

### Ultrasonic water meters

Over the past few years, Czarick’s laboratory has focused on the development of an ultrasonic water meter that can track and monitor water consumption data in the poultry house.

Ultrasonic meters use sound waves to measure the flow of water, “basically just bouncing sound waves through the water in that pipe,” explained Czarick.

One of the biggest benefits of this is the ability to measure even low flow rates accurately. In

addition, controllers attached to the water meter can provide data in 15-minute increments. This means that poultry growers can look for odd spikes or drops in water consumption that indicate changes in poultry health and welfare.

Water consumption data has even been used to help better understand the bird circadian rhythm and determine the optimal dark/light period for poultry welfare.

“This is a new technology for us that can help us better understand what our birds are doing. I think the better we understand what our birds are doing, the easier it is to manage them,” Czarick said. ■

## POULTRY FUTURE

Like what you just read? Sign up now for free to receive the Poultry Future Newsletter  
<http://bit.ly/389GLvx>



# How to unlock hidden value in poultry processing line data

Bringing data together for real-time analysis allows poultry processing line issues to be quickly addressed.

DR. RICHARD PARMEE

Monsitj | iStock.com

**T**he data generated by poultry processing plant inspection systems can be put to far greater use than is currently the case. By employing real-time analysis of data that is all too often simply ignored, poultry processing plants can raise quality and efficiency.

End-of-line inspection is a standard part of the quality control process in any poultry processing facility. Checkweighers, metal detectors, X-ray inspection systems and vision systems all monitor production to ensure quality and conformity of products.

But what is often missed is the hidden value of the data produced by such inspection systems.

## Unlocking data complexity

Although inspection systems typically make binary decisions — an item is either good or bad — the data



**A poorly printed food label could cause significant problems.** Andrew Linscott | Shutterstock.com

used to make those decisions is far more complex.

This data is usually discarded immediately after the quality control decision has been made — yet it could hold the key to valuable production line optimization.

A dramatic reduction in the costs associated with data collection, storage and analysis — along with new tools such as machine learning — have made it possible to capture “fast-moving” data on the production line and analyze it to yield benefits.

Measurements from a checkweigher, for example, can flag issues before they bring production to a halt. If four filling machines are involved in producing boxes of chicken nuggets and one of them develops a fault that leads to overweight boxes, high-level data might not suggest a problem if the batch averages across the four machines are within the accepted range. It is only when the individual weights are analyzed that a pattern emerges — allowing the issue to be identified and resolved.

## Bringing data together

Linking equipment data can also reveal useful information.

If a weigh price labeler is linked to a vision system designed to ensure labels are properly applied, analysis of the contrast of the print on the label can provide an early warning that the print head is failing. Preventive



0101

maintenance can be carried out to avoid an unplanned stoppage if the print quality falls below the required standard — crucial if the label includes key allergen information.

X-ray inspection systems, at their most basic level, detect foreign objects such as metal, stone or glass contaminants. However, the X-ray image can also be used to verify a product's integrity.

As with the checkweigher, reject periodicity can indicate an issue with upstream equipment, but X-ray inspection can probe deeper into the specific issue.

Take, for example, a four-pack of chicken spread pots. If one of the filler valves has become partially blocked, one of the four pots will be repeatedly underfilled. This underfill may not be sufficient for a checkweigher to identify the overall product as being underweight. But, by measuring the mass of each pot individually, using X-ray zoned mass inspection, the four individual masses can be reported to the supervisory system, and any deviations from the production norms can be identified rapidly.

The latest X-ray inspection technology can also be used to check that the correct number of items are in a container. This, combined with a checkweigher, ensures the correct package weight is maintained, and the product is supplied as expected. The technology can also highlight the average size distribution of a product.



**Is the right number of products in a package and are they all of an acceptable size? The latest X-ray technology can tell you.**

*Magone | iStock.com*

With a pack of four chicken legs, for example, the total weight and the total number of legs is controlled, and any packs found to be nonconformant are rejected. But a pack containing three small and one large chicken legs, while acceptable, is not as desirable as four similarly sized legs.

However, the size of each chicken leg can be recorded by the X-ray system, and the data analyzed, even if it is not used to make a rejection decision. It may be decided, at a later date, that, in fact, this should be made a criterion for rejection — at which point historic data is available to

# HOW CAN YOU EASILY FIND **CRUCIAL** INFORMATION for the Global Poultry Industry?

Subscribe now for the most trusted content, analysis and solutions to advance your business.



**SIGN UP TODAY!**  
[WATTGlobalMedia.com/publications](http://WATTGlobalMedia.com/publications)

## STAY COMPETITIVE IN THE MARKET THROUGH:

Comprehensive articles | Expert insights | Exclusive research and data

## HOW TO UNLOCK HIDDEN VALUE IN POULTRY PROCESSING LINE DATA

allow a data-driven decision to be made regarding acceptable tolerances.

### Ensuring traceability

Traceability is another key issue where reliable data is vital. If, for example, there is an increase in the rate of bone contamination in packs of chicken breast fillets, it can be difficult to determine which supplier provided the nonconformant material — until now, this has been a largely manual, time-consuming process.

If, however, the details of each unique inspection are automatically fed back to a central database that already has information on which starting batch was used and which intermediate equipment the product had passed through, it is much easier to determine



### How X-ray vision is keeping track of chicken nuggets

[www.WATTAgNet.com/articles/44742](http://www.WATTAgNet.com/articles/44742)

Jacek Chabraszewski | Dreamstime.com

how and why issues have arisen.

As the quantity of data increases, so does the value of combining data from a variety of sources.

Does the operation of one piece of equipment affect the behavior of a neighboring machine, for example, leading to a nonconformant product?

By bringing a broad range of data into a single location, in real time, temporal and environmental factors can be more easily correlated with issues. This interconnected data can be harnessed to reveal unprecedented hidden value in the poultry production line. ■

*Dr. Richard Parmee is founder and CEO of X-ray inspection technology specialist Sapphire Inspection Systems.*

**Prince Industries** is a global leader in mechanical separating equipment and solutions since 1964.

- Serving the poultry, red meat, pork, fish, pet food industries and more
- State-of-the-art, cost effective designs
- Custom designs from a single machine to entire vertically integrated operations
- OEM parts manufacturing



2000 Combo

**EFFICIENT,  
INNOVATIVE  
MECHANICAL SEPARATION  
SYSTEMS & SOLUTIONS**

**P**  
**PRINCE  
INDUSTRIES**

**See us at IPPE, Booth C13543**

consulting | engineering | manufacturing

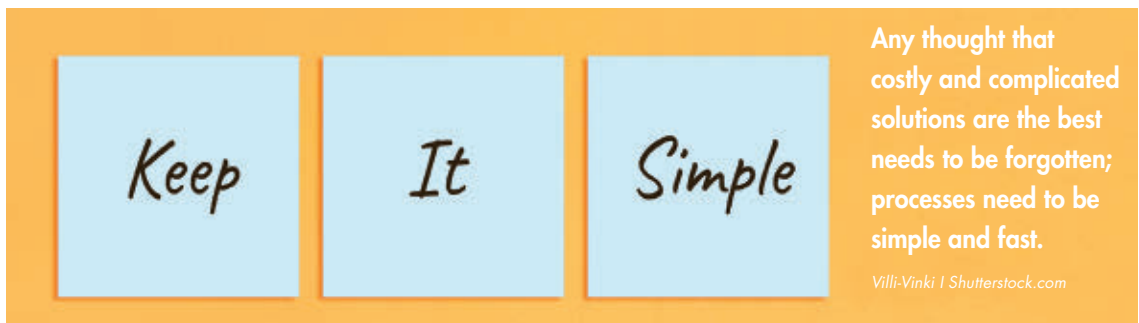
770.536.3679 | [prince-inc.com](http://prince-inc.com)



# Attitude, approach key for processors' long-term survival

The right structure and attitude toward both the working of poultry processing plants and markets are essential to long-term survival.

EDUARDO CERVANTES LÓPEZ



**P**oultry processing plant management teams must have the right structure in place if they are to ensure that the plant runs properly, markets are optimally served and that the business will survive in the long-term.

Arrogance, bureaucracy and complacency are the enemies of all companies, and their emergence can result in a business' steady decline. Unfortunately, their symptoms can often be seen in the processing plants that ought to be working to satisfy the growing demand for poultry meat, rather than celebrating how much has already been achieved.

Arrogance can occur in any company, big or small, and might be characterized by a belief that everything is running smoothly, that the right procedures are in place or that all the right checks are being made, no matter how infrequent.

When companies fall into the bureaucracy trap, managers dedicate their time to results, budgets, organizations and policies, for example, forgetting the importance of winning the trust and respect of the workforce — the real resource for company success.

Studies have shown that, rather than concentrating

on hard management, managers need to be on the plant floor, observing where processes might be going wrong and interacting with workers to discover their concerns and to find solutions. This aspect of management can not only lead to solving problems as they arise but may even lead to new business ideas.

Lastly comes complacency, where a company becomes satisfied by what it has achieved, rather than looking to the new challenges ahead.

Should companies fall into any of the above-mentioned traps, they will die, but following the right business approach can prevent this. A more successful approach would be to follow the Simple, Compact and Dynamically Exponential model.

## Keep things simple

According to Jack Trout, marketing strategist and author of *The Power of Simplicity: A Management Guide to Cutting Through the Nonsense & Doing Things Right*, what is often difficult in life is to do things simply.

Daily management must be timely, as speed can make all the difference in business. Excuses, putting off



Understanding customer needs in real-time will aid the development of new product and service offerings. Aelita | Shutterstock.com

decisions, over-analysis and the belief that complicated and costly solutions are the best need to be relegated to the past.

Speed and simplicity offer huge advantages, and they can be more easily achieved by recognizing which activities waste time and which create lasting value.

Companies need to offer disruptive products and services that anticipate market needs; this will keep consumers curious, and have competitors wondering why they had not thought of doing the same.

### Compact working

A culture of optimization needs to be fostered, with all employees conscious of the company's objectives.

A way to help achieve this is through the formation of Trusted Elite Groups, which are supported by Security Circles made up of those they can draw upon for support. The members of these Trusted Elite Groups direct all of their attention and energy to the market they serve and to new markets they want to enter.

This invaluable human team is supported by a solid structure of people — the Security Circle — with a broad education and who are experts in task completion.

Once this structure has been adopted, new objectives can be reached — it is simply a question of time.

### Exponential Dynamics

The above-mentioned Trusted Elite Teams are entrepreneurial units that must direct their attention both

internally and externally to keep the business moving and growing.

Internally, they need to look at microdetails. This might be, for example, to improve carcass yield or reduce quality issues. Similarly, they may thoroughly examine expenditure with the aim of finding simple and practical cost-savings that can easily be put into place.

Taking this approach can result in a greater volume of Grade A meat being produced at a lower cost. With more profitable production, the company's market position is strengthened.

Looking externally, they may, for example, use artificial intelligence as a tool to learn more about both current and future clients. When buying behavior can be monitored in real time, we gain a deeper understanding of the products that people want, the quantities that they want, the frequency with which they purchase and who our customers really are. Products can be developed that are similar, or complementary, to what customers are currently purchasing.

The creation of the right management culture can result in an environment that leads to a constant flow of new products, services and business opportunities, helping to ensure long-term survival. ■

---

*Eduardo Cervantes López is an international consultant based in Colombia. He can be contacted at [icproave@hotmail.com](mailto:icproave@hotmail.com) or via [www.icproave.com](http://www.icproave.com).*

@ Soft management ideas could strengthen poultry processors [www.WATTAgNet.com/articles/45677](http://www.WATTAgNet.com/articles/45677)



How will the **CHANGING PET FOOD MARKET** impact ingredient demand?

Attend **PETFOOD FORUM** to:

- Make connections with ingredient buyers
- Stay on top of the fast-moving pet food market and industry changes
- Hear the latest on ingredients, nutrition, processing and more
- Discover new technology and innovations

Presented by Petfood Industry

**LOCK IN** the lowest rates by **December 31!**

• **SAVE UP to \$500!**

Register at: [PetfoodForumEvents.com](https://PetfoodForumEvents.com)

**PETFOOD<sup>®</sup>**  
 **FORUM**

**MAY 1-3, 2023** • Kansas City, Missouri



## PRODUCTS

To search a full list of products, go to  
[www.WATTAgNet.com/directories/290](http://www.WATTAgNet.com/directories/290)

### BIOZYME BACKYARD BOOST BUSY BALLS



The BioZyme Busy Balls contain Amaferm, BioZyme's proprietary prebiotic, to increase digestion and absorption of nutrients, as well as high-energy fat, sunflower seeds and grains. In addition to supporting gut health and well-being, the balls help

alleviate boredom, which often leads to pecking and other undesirable behaviors.

<http://www.biozymeinc.com>

### DYNATROL SEALED AND SUSPENDED DJ LEVEL DETECTORS



The Dynatrol Sealed and Suspended DJ Level Detectors handle high point level detection of bulk solid materials for problem

applications, such as those associated with angle of repose in feed and grain storage. This configuration provides reliable operation in hard-to-reach locations. This rugged device with vibrating probe prevents buildup and ensures a reliable level measurement in bins or hoppers. Excellent use to handle applications that include low-density flakes and powders to pellets and heavy granular materials.

<http://www.dynatrolusa.com>

### ABB ABILITY SMART SENSOR



The ABB Ability Smart Sensor turns rotating equipment including drives, motors and applications such as pumps,

into smart, wireless connected assets. This solution is designed to detect potential asset disturbances and planned maintenance before the reliability, productivity and safety of machinery are impacted. The smart sensor fits to the asset's surfaces, collecting and transmitting data via smartphone or gateway to a secure cloud service. Advanced algorithms analyze the data to provide real-time insights into the condition and performance of monitored assets. The asset to be monitored is chosen during commissioning. All components of a powertrain can be monitored via one portal: either individually or as part of the complete powertrain.

The Ability Smart Sensor is ideal for application in hazardous areas and harsh environments. The sensor's enclosure is designed to withstand high vibration levels and protects from total dust ingress (IP66/67).

<https://new.abb.com/us>

**XL**

Duck/Turkey/Goose egg tray

**TRADITIONAL**

Chicken egg tray

**QUAIL**

Quail egg tray

**MINI**

Chicken egg tray

**EGG CRATE 360**

200 eggs

GI-OVO | [www.gi-ovo.com](http://www.gi-ovo.com) | [sales@gi-ovo.com](mailto:sales@gi-ovo.com)

See us at IPPE, Booth B5347



Farming passion



Till 40 silos in 1x40' O/T container

Agritech s.r.l.  
Calvisano (BS) Italy  
commerce@agritech.it  
www.agritech.it



# WATT Poultry<sup>®</sup> International

## Sales Team

Contact us at  
[www.wattglobalmedia.com/contact-us](http://www.wattglobalmedia.com/contact-us)



Frans Willem van Beemen



Tineke van Spanje



Dingding Li



Chad Forster



Mary Harris



Jeff Miller

## ADVERTISERS' INDEX

Agritech Srl .....	44
Duram Industries A C Ltd .....	C3
Evonik Nutrition & Care GmbH .....	22-23
Foodmate BV .....	7
Giordano Poultry-Plast SpA .....	C2
GI-OVO BV .....	43
Lubing Maschinenfabrik GmbH .....	11
Ovoconcept .....	21
Pak Tavuk Gida San Ve TIK A.S. ....	15
Prince Industries Inc .....	39
Specht Ten Elsen GmbH .....	C4
US Poultry & Egg Association .....	14, 19

Subscriptions: Visit <https://www.WATTAgNet.com/product-portfolio> or contact Customer Service at +1 855 896 3491, +1 847 400 5960, or [wattpoultryinternational@omeda.com](mailto:wattpoultryinternational@omeda.com). Business and occupation information must accompany each subscription order. Single copy price US\$20.00 unless otherwise marked. Change of address: Provide both old and new address when requesting change of address.

POSTMASTER: Send address changes to WATT Global Media, PO Box 468, Lincolnshire, IL 60069.

© Copyright 2022 WATT Global Media  
All rights reserved.

ELECTRONIC SERVICE REQUESTED  
Vol 61, Issue 12, WATT POULTRY INTERNATIONAL (ISSN 0032-5767) is published monthly by WATT Global Media, 401 East State Street, 3rd Floor, Rockford, Illinois, 61104 USA. All rights reserved. Reproduction in whole or in part without written permission from the publisher is strictly prohibited. WATT Poultry International and its logos are registered trademarks of WATT Global Media. Postage paid at Rockford, IL, USA and additional mailing offices.

# DURAM PICKING FINGERS



See us at IPPE,  
Booth C11631

**good to the last feather ...**

DURAM RUBBER. CO.

KIBBUTZ RAMAT HAKOVESH 44930, ISRAEL, FAX. 972-9-7474479, TEL. 972-9-7474458

E-mail: [duram@netvision.net.il](mailto:duram@netvision.net.il)

• [www.duram.co.il](http://www.duram.co.il)



# Where chickens are, is

# Specht®



## »VARIA with MIDDLE NEST« MANUFACTURER OF POULTRY



**Egg collection from the middle nest!**  
Eggs from the installation are collected automatically.

Good overview throughout all tiers!

Narrow manure belts ensure a smooth belt run!

The depth of the equipment up to the middle is one arm length!

Accessible landing grids!

Animal-friendly nests!

Upon request with manure drying system!

## THE »SPECHT VARIA PLUS« SYSTEM

The „Specht Varia Plus System“ is the result of our experience for decades.



More space per bird according to the rent requirements of animal welfare.

Excellent overview under the installation as well as under in each tier.

Water, feed, resting area and nest are available in each level.

Good nest inspection due to their arrangement the outside.

Due to tiltable floor the automatic lock of the nest is possible.

The wide egg belts ensure sufficient place for the eggs.

Additional perches in the installation.

The additional level above the nests is possible.

Directly from the manufacturer.  
Since 1961 our own fabrication.

Benefit from our experience.



## Poultry Equipment - Equipement Avicole

# Ten Elsen

GmbH & Co. KG



Dassendaler Weg 13 • D-47665 Sonsbeck (Germany)

Telefon +49 (0) 2838 912-0 • Telefax +49 (0) 2838 2791

info@specht-tenelsen.de • www.specht-tenelsen.de

Hans Theo Ten Elsen • GSM: +49.173 - 8 79 65 82