

# International Poultry Production

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Practical information for progressive poultry professionals

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**Getting Chicks off to a  
Good Start to Maximise  
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# Editor's Perch

**H**as digital transformation revolutionised poultry farming?

Traditionally, poultry farming has been one of the most challenging industries, and with flock sizes in some of the largest operations reaching into the hundreds of thousands, industry demands are high.

The range of areas needing attention is huge, from welfare standards and compliance to biosecurity and disease control.

But over the last decade, we have seen strides in the development of artificial intelligence and robotics, enabling poultry farmers to have the tools to better manage their flocks and their businesses.

Digital transformation has changed the way poultry farmers operate, and farmers need to understand the benefits and embrace the ever growing and changing technology.

Artificial intelligence can be used in areas like genetic selection, hatching, rearing and processing. Robotics technology can be used to collect thousands of bits of real-time data on parameters like temperatures and humidity, ventilation, air quality, litter quality,

and monitoring birds' body weight and egg production.

The above benefits are undeniable solutions that artificial intelligence and robotics will bring to the poultry industry.

But while digital transformation has many benefits, does it solve all problems? Or could it even create problems?

Artificial intelligence systems will likely replace human engagement and lead to reduced interaction with animals; could this negatively impact the welfare of birds?

There is also the issue of cost. Like all new technologies the cost to purchase, install and maintain these systems in poultry facilities is staggering.

This cost is likely to slow down the transition of adopting the new various technologies in developing countries when compared to the already technologically advanced countries.

Much more research and development is needed to ensure developing countries are not left too far behind.

We need to find solutions and assist poultry farmers at any level of poultry establishment. ■

## Cover Picture:

**Optimising early development**  
(photo courtesy of Aviagen Turkeys - see page 13)



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# BREEDER MANAGEMENT

## BROODING THE CHICKS

### Stimulate drinking and eating behaviour from day-old

#### LIGHT

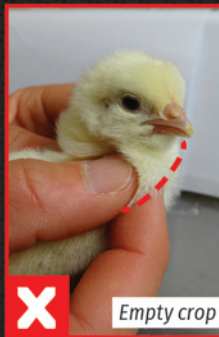
- Uniform lighting.
- Minimum 60 lux during the first days.
- Use an intermittent lighting programme \*\*\* at least from day 1 to day 7 e.g. cycles of 2.30 h light/30 min dark at day 1. Always respect the recommended hours of light below and a minimum of 4 cycles of light/dark per day.
- Reduce light duration and intensity as indicated in the table below.

#### TEMPERATURE

- 1 brooder per 500 chicks. Please refer to the table below and adjust according to the distribution of the chicks in the house.
- Decrease the temperature regularly and progressively to 20°C at 5 weeks.



Full crop



Empty crop



#### FEED

- Ad libitum first 2 weeks or until 3 weeks if the 2 weeks bodyweight is not achieved.
- Check the crops: after 24 h, 96% of the chicks should have a full and soft crop.
- Chick paper on the floor with feed on at least 50% of the surface.
- Fresh feed (starter crumbles or mini pellets), replenish regularly to stimulate appetite. Avoid build up of feed dust during the first 2 weeks.
- Start using the chain feeders at 6-8 days.

#### DENSITY / DISTRIBUTION

- Density at placement: 25-30 birds/m<sup>2</sup>.
- Increase floor space in 3 steps.
- Distribution of the chicks needs to be uniform throughout the entire house.

#### WATER

- 1 drinker per 60 birds.
- Water should be at ambient temperature (24-26°C).
- Ideal pH is between 5.5 and 6.8 with an optimal Redox potential higher than 600 mV and/or chloration at the end of the pipe of 1ppm (acceptable range: 0.5 to 3 ppm).
- Nipples: regularly check height and pressure.
- Drinkers: regularly check height and water level (maximum 2 cm).



AGE IN DAYS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TEMPERATURE	Under the heaters	35-36			32-34			28-30								
	Living area	28			27-28			25-26								
	Whole house heating	31-32	30-31	29-30	28-29	26-27										
HUMIDITY	%		50-60													
EQUIPMENT	Drinker	1 round drinker for 60 birds; 1 nipple for 8 birds							1 round drinker for 80 birds; 1 nipple for 8-10 birds							
	Feeder	1 feeder/50-70 birds + chick paper > 50% of the surface							Chain feeder: 6-8 cm/bird; 1 oval pan feeder/ 13-14 birds*; 1 round pan feeder/12 birds							
DENSITY	Chicks/m <sup>2</sup>		25-30			12			6-8							
LIGHT PROGRAM	Light duration (h)	Conventional range	24	22	21	20	19	18	17	16	15	14	13	12	11-12 **	8-12 **
		Premium range	24	22	20		18		16							
	Light intensity*** (lux)	60			40			20			5-10					

\* Feeding space to be adjusted according to the behaviour of the birds. Manage properly the feeder openings to maintain uniformity.

\*\* In case the target weights of the males and/or females are not achieved at 7 days.

\*\*\* If permitted by local regulations.



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# World Focus

An executive summary of key international issues

## BRAZIL

### Floods impacting poultry and meat production

The Rio Grande do Sul state in Brazil has seen a series of devastating floods that have had a significant impact on livestock and meat production in the country. Heavy rains have caused huge losses for poultry farmers and it is reported that approximately 279,000 broiler hens, 150,000 laying hens, 120,200 breeders and 2,800 grandparents have died because of the flooding. Meat packers have also been badly impacted and had to halt production at at least 10 plants. Rio Grande do Sul accounts for 16.2% of Brazil's total poultry exports.

## INDIA

### Indian chicken prices surge

Across the east and south of India, chicken prices have risen by more than 25% due to a shortage of supply. Extreme heat and water shortages have increased bird mortality and reduced output. It is reported that approximately 30% of chicks die within the first two weeks because they are unable to adapt to extreme temperatures. The demand for chicken in the country has remained high. Meanwhile, the north of India has seen chicken prices fluctuate, partly due to panic sales by farmers. However, retail prices have remained stable as the poultry sector in the north of India is controlled.

## ENGLAND

### New grant to help farmers improve hen housing

A new grant of up to £500,000 aims to support poultry farmers in England to improve hen housing. The grant will be available to laying hen and pullet farmers with flocks of 1,000 birds or more. The first grant will go towards the cost of installing a new veranda on an existing building, which can help provide additional space, reduce crowding and provide access to fresh air and natural light. The second will go to helping with the cost of refurbishing or replacing existing housing. This provides an opportunity to enhance how flocks are housed, with features designed to deliver high levels of health and welfare.

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# Optimising broiler nutrition: strategies for healthier chickens

**N**ecrotic enteritis (NE), caused by toxins produced by *Clostridium perfringens*, is one of the most common and costly diseases that affect the poultry industry. Recent research in broiler nutrition has unveiled the critical importance of managing microbial loads in broiler breeder feed, highlighting its profound impact on eggshell contamination, hen mortality and chick quality.

by Jorge Trindade MBA, DVM,  
Anitox Regional Sales Director EMEA  
Anitox  
www.anitox.com



Additionally, ongoing investigations into the benefits of clean feed on broilers facing challenges such as NE suggest that early intervention with sanitised feed could significantly enhance overall gut health, enabling broilers to better withstand disease pressures and achieve improved performance.

## UNDERSTANDING THE ROLE OF FEED IN PATHOGEN TRANSMISSION

Quality feed is the primary vehicle for delivering nutrients to developing poultry, but feed also poses a significant risk as a carrier of pathogens.

For example, in the US, a surveillance study from 2002 to 2009 reported a 12.5% *Salmonella* contamination rate of feed and feed ingredient samples from manufacturing facilities.

Other notable evidence includes a survey that reported the presence of pathogens in various feed ingredients, finding that 0.7% of animal-derived proteins, 2.2% of oilseed meals, and 1.3% of cereal grain samples tested were positive for *Salmonella*.

*Salmonella* in soybean meal and rapeseed meal samples was also found at varying rates. In a recent report, conducted a year-long study across five mills, discovering a

high incidence of *Clostridium* spp. and detecting *E. coli* in sampled ingredients and finished feeds.

Elevated microbial loads in feed are strongly correlated with increased pathogen prevalence, which poses a threat to poultry health and productivity.

Analysis of thousands of feed and feed ingredient samples collected worldwide and tested by Anitox's Laboratory reveals the variability in microbial profiles among different feed types and ingredients, with animal by-products, vegetable proteins, and cereal grains being particularly susceptible to contamination.

Fig. 1. Microbial load of control and sanitised rations.

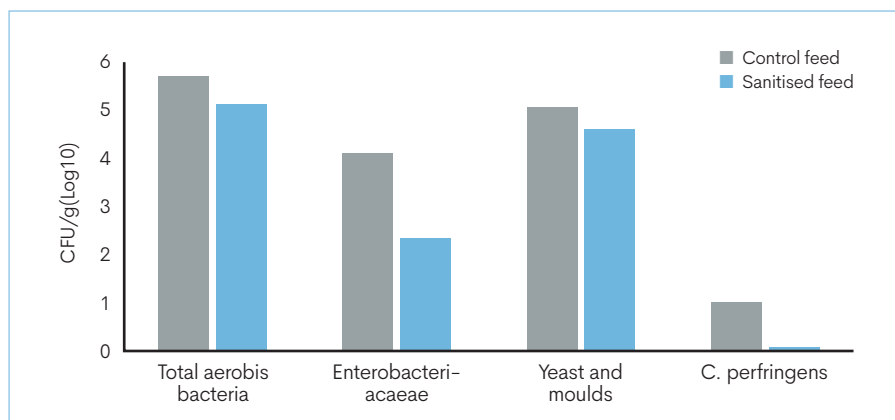
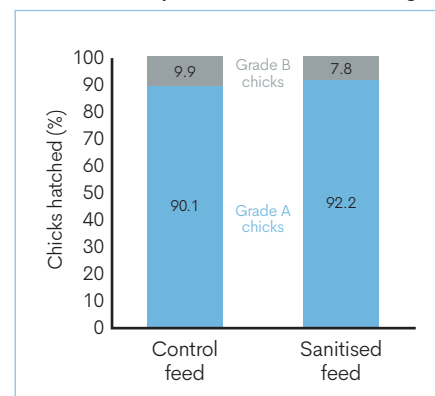


Fig. 2. Progeny of hens fed sanitised feed were more likely to receive Grade A ratings.



Various factors, including ingredients, particle size, pathogens, and environmental contaminants, influence the microorganisms found in poultry feed.

These microbial pathogens, in turn, can impact the development of the poultry microbiota and immune system. Pathogens, such as Salmonella, present in contaminated feed can enter the poultry gastrointestinal tract (GIT) upon consumption and potentially colonise it, with increased susceptibility in young, developing birds.

Aside from the hatchery environment, feed is one of the first things a chick encounters post-hatch, and its nutritional and microbial quality has a significant impact on initial gut health.

Early introduction and colonisation of pathogenic microorganisms in the avian gastrointestinal tract can disrupt the delicate balance of the gut microbiota and impede the establishment of healthy microflora.

This imbalance not only compromises intestinal integrity but also predisposes birds to various health issues, including decreased growth rates and increased susceptibility to diseases like NE.

### FEED SANITATION BENEFITS BROILER HEALTH AND PERFORMANCE.

A recent study which was conducted in collaboration with the Poultry Science department at the University of Georgia, explored the effects of reducing feed microbial loads on broiler breeder performance and progeny quality.

During this study, broiler breeder hens were subjected to either a control diet or a diet treated with a feed sanitiser from weeks 25 to 60 of their life cycle (Fig. 1).

Results indicated that decreasing feed microbial loads not only improved hen mortality but also positively impacted the offspring of hens fed a sanitised diet. Furthermore, hens consuming sanitised feed produced a higher percentage of "Grade A"

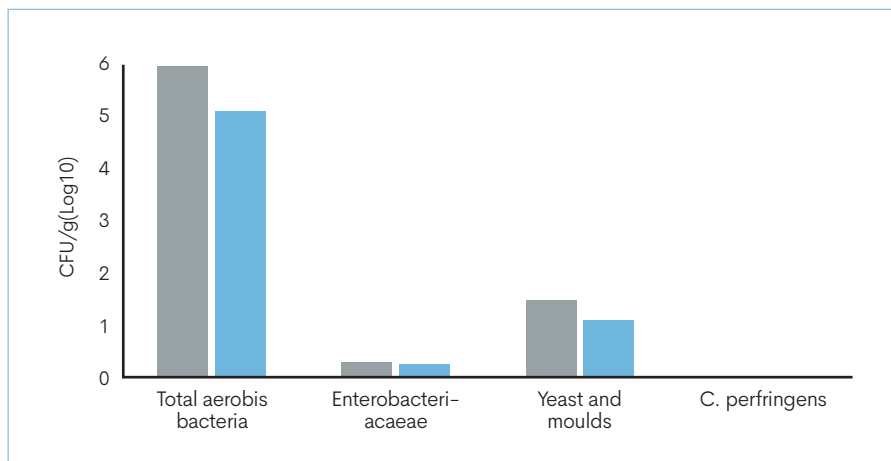


Fig. 3. Microbial load of eggshell surfaces for hens consuming control and sanitised rations.

chicks (Fig. 2). Reduced microbial loads on eggshell surfaces resulting from these same hens may have contributed to improved chick health post-hatch, as suggested by the observed reduction in 7-day mortality rates, particularly from the progeny of hens in late lay (Fig. 3).

Further research, conducted in collaboration with Colorado Quality Research, suggests that early intervention with feed sanitisers during the first two weeks of life can enhance broilers' resilience against NE challenges.

Broilers consuming sanitised feed demonstrated lower NE-specific lesion scoring, reduced oocyst shedding, and improved overall performance compared to those fed untreated diets.

Additionally, they exhibited lower NE-related mortality and reduced mortality from day 7 to day 35, underscoring the importance of early-life nutrition in disease prevention (Fig. 4).

Managing microbial loads and reducing pathogen introduction during the early broiler life stages can have profound implications for lifetime health, growth, and performance.

Feed sanitisers, applied at low inclusion

rates, effectively reduced feed microbial loads and provided long-term protection against recontamination.

By mitigating the risks of pathogen colonisation and dysbiosis, feed sanitisers empower producers to optimise broiler health and productivity, ensuring the delivery of high-quality poultry products to meet consumer demands.

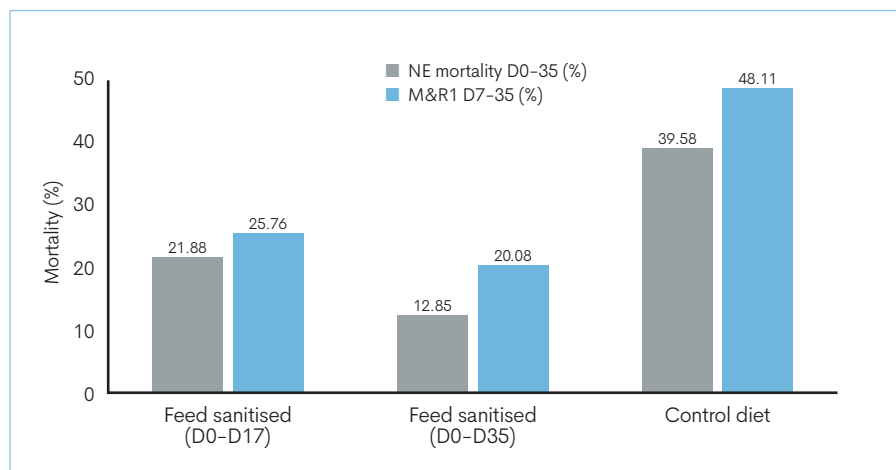
Prioritising strategies to control microbial loads in broiler feed, especially during critical developmental windows, represents a proactive approach to promoting broiler health and performance.

Continued research efforts aimed at understanding the mechanisms and long-term impacts of feed sanitisation will further enhance our ability to safeguard poultry health and welfare in the face of evolving challenges.

Reducing microbial loads in feed is crucial for maintaining optimal broiler health and performance. ■

References are available from the author on request

Fig. 4. Birds fed sanitised feed demonstrated lower NE-related mortality and mortality and removal (M&R) in an NE challenge model compared to birds fed a control ration.



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# Blackhead disease in poultry: oregano oil as a natural miracle cure?

The parasitic blackhead disease causes considerable economic damage in poultry farming due to loss of performance and animal losses.

by Francisca Veinat, Dostofarm  
dostofarm.com

Unfortunately, oregano oil alone is not a miracle cure for blackhead disease, but it can be used as a supplementary feeding measure to support the health of the animals.

## CONSEQUENCES OF BLACKHEAD DISEASE

Blackhead disease, also known as histomoniasis, is caused by the single-celled parasite *Histomonas meleagridis*. Infection usually occurs via intermediate hosts such as nematodes or earthworms.

If animals ingest the parasites, they settle in the intestine and appendix and spread from there to the liver. This leads to massive inflammation of these organs. The consequences can be devastating.

- Poorer feed conversion
- Diarrhoea
- Emaciation
- Loss of performance
- In severe cases, death

## NATURAL AND EFFECTIVE

Oregano oil has been shown in various trials to improve gastrointestinal function.

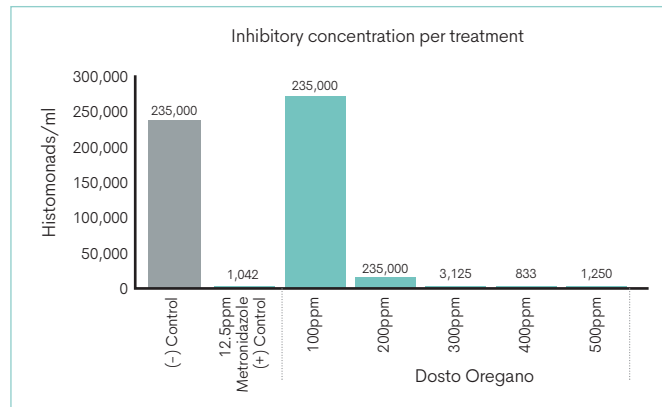


Fig. 1. In vitro experiment with oregano oil and *Histomonas meleagridis*.

In 2019, the Department of Poultry Science at North Carolina State University found in an in vitro experiment with oregano oil and *Histomonas meleagridis* that a concentration of 0.02% oregano oil reduced the number of histomonads by around 95% (Fig. 1).

"Oregano oil is known to have anti-inflammatory properties, among other things.

In the case of histomonas infection, data and studies show that there is a reduction in liver and appendix lesions (Fig. 2).

Less intestinal inflammation also means that the body can better absorb and utilise the nutrients from the feed (Fig. 3).

The combination of anti-inflammatory properties and improved feed conversion, also due to the appetising effect of oregano oil, can contribute to an

overall stronger immune system and an associated lower mortality rate" Francisca Veinat, Product Manager at Dostofarm, told International Poultry Production (Fig. 4).

Specialist veterinarian and author Dr. Erwin Sieverding from Lohne

recommends the use of purely natural oregano oil in his article "A torture for animals and humans" and not only for health reasons: "The administration of oregano-containing products in drinking water or their preventive use in feed are generally helpful measures to minimise economic damage."

## CONCLUSION:

Oregano oil alone is not a miracle cure for blackhead disease but can be used as a complementary measure to stabilise feed intake and thus support animal health.

Therefore, it also contributes to sustainable and economical production.

*Department of Poultry Science, North Carolina State University, 2022, experiment with *Histomonas meleagridis*-infected turkeys, duration from day 0 to 28. The animals were infected with *Histomonas* on day 14 of life. Non-infected animals were compared with infected turkeys and with infected turkeys that received either 45g, 75g or 300g of oregano oil per ton of feed. The following feeding trial results are shown in figs. 2 to 4.*

Fig. 3. Oregano oil reduces liver and appendix lesions in a histomonas infection.

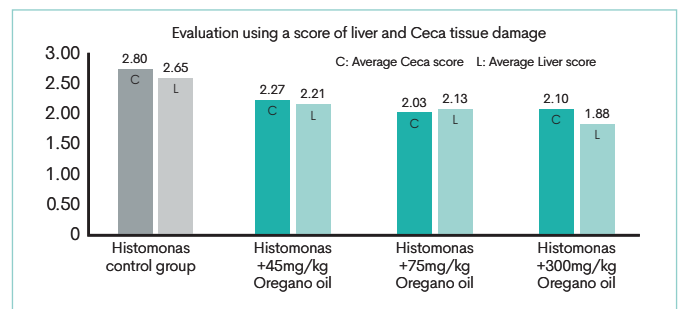


Fig. 4. Oregano oil reduces the mortality rate in a histomonas infection.

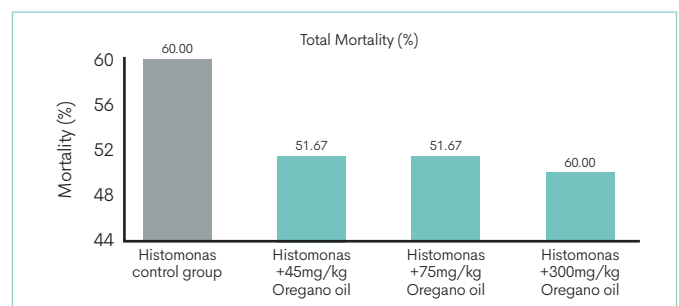
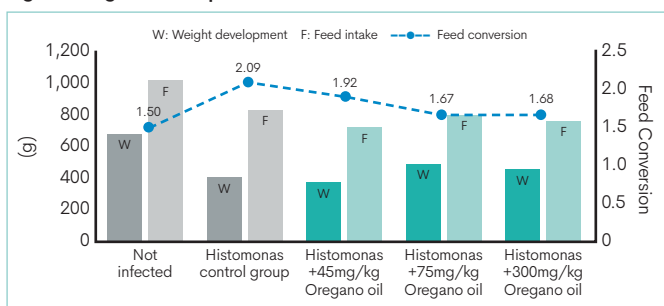


Fig. 2. Oregano oil improves feed conversion in histomonas infection.



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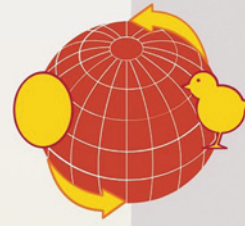
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# Improving vitamin D and calcium utilisation in broilers

Vitamin D is essential for calcium metabolism in broilers. Panbonis, a plant-based feed material that contains glycosylated 1,25-dihydroxycholecalciferol, supports vitamin D and calcium homeostasis.

by Jan Dirk van der Klis and Katia Pedrosa, Herbonis Animal Health, Augst, Switzerland herbonis.com

Therefore, the dietary calcium level can potentially be reduced when using Panbonis without adverse effects on the production performance or bone quality of broilers. It has been demonstrated that excess dietary calcium has a potential negative effect on intestinal nutrient digestibility.

However, too low calcium levels have adverse effects on production performance and bone quality in fast-growing broilers.

## CALCIUM UTILISATION

It is essential to maximise the efficiency of calcium utilisation, especially when dietary calcium levels are getting closer to the bird's requirement.

Moreover, as Panbonis has a different mode of action compared to phytase, it is not likely

	High (%)	Medium (%)	Low (%)
Starter, 0–10 days	1.00%	0.90%	0.80%
Grower, 11–24 days	0.86%	0.78%	0.68%
Finisher, 25–35 days	0.80%	0.70%	0.60%

Table 1. Dietary calcium levels in the experimental diets.

that the potential mineral matrix of Panbonis would depend on the one for phytase.

Instead, when Panbonis allows a reduction in the dietary calcium level through improved intestinal calcium absorption, it most likely will stimulate phytase efficacy by reducing the complexation between phytate and calcium in the intestinal tract.

Others have shown that the adverse effects of dietary mineral imbalances on bone health in broilers could be effectively eliminated by using a dietary source of 1,25-dihydroxycholecalciferol.

In this broiler experiment, the positive effect of Panbonis on calcium utilisation was demonstrated from 0 to 35 days of age.

A three-phase wheat, corn/soy mash diet was used, which contained both endoxylanase and phytase.

For phytase, an available phosphorus matrix of 0.15% the dietary calcium level was

reduced in two steps by 20% compared to a control, resulting in a high, medium and low calcium content, as shown in table 1.

The calcium to available P ratio was kept at 2:1 (incl. the phytase mineral matrix values). Diets contained 2,400 IU of vitamin D/kg.

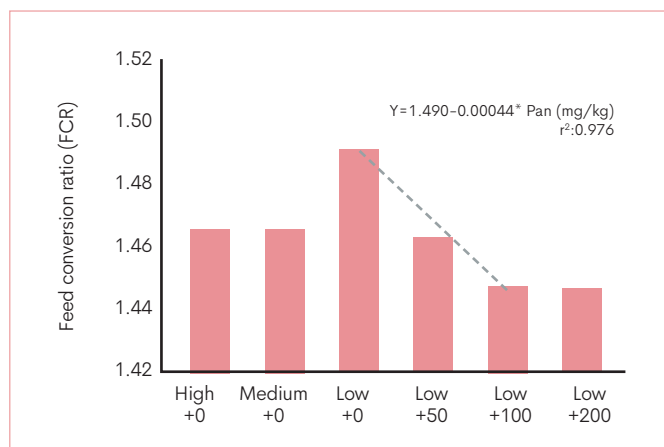
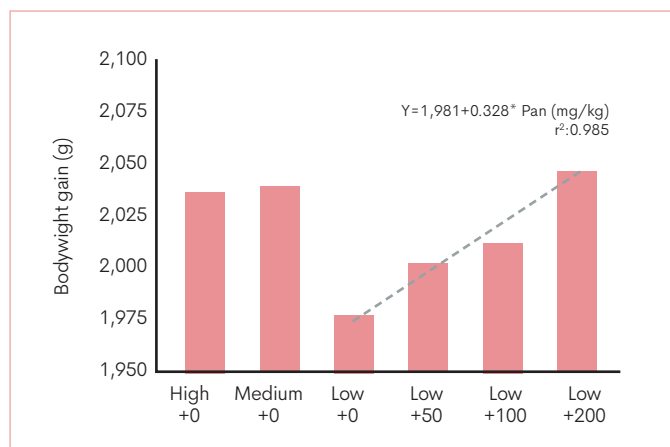
## LOWEST MINERAL CONTENT

The diets with the lowest mineral content were supplemented with 50, 100 and 200g/t Panbonis, resulting in six treatments. 1,080 male Ross 308 broilers were used (6 treatments x 10 replicates x 18 broilers per replicate), housed in floor pans.

Production performance was measured per phase and over the full experimental period, as well as tibia-breaking strength at 35 days of age.

*Continued on page 12*

Figs. 1 (left) and 2 (right). Body weight gain (BWG) and feed conversion ratio (FCR) of broilers from 0 to 35 days of age when fed diets with graded levels of calcium (High, Medium, Low) and Panbonis levels (0, 50 and 100 200g/MT).



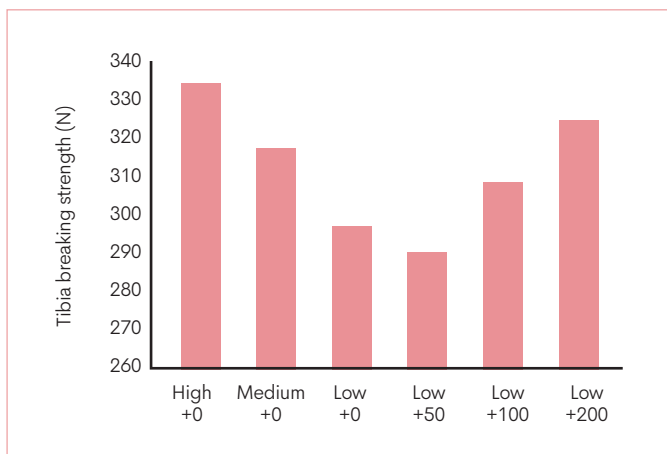


Fig. 3. Tibia breaking strength in 35-day-old broilers when fed diets with graded levels of calcium (high, medium, and low) and Panbonis levels (0, 50, 100 and 200g/MT).



Continued from page 11

The results on both body weight gain and feed conversion ratio are shown in Figs. 1 and 2. The first 10% reduction in calcium content did not affect production performance, whereas the next 10% reduced body weight gain and increased feed conversion ratio, indicating that these diets were calcium deficient.

Supplementation of the low calcium diet with Panbonis linearly improved body weight gain up to the highest inclusion level of

200g/t and feed conversion ratio up to an inclusion level of 100g/t. Production performance was at least similar to the control diet(s).

The inclusion of 100g/t Panbonis in diets with low calcium content resulted in 33g higher body weight gain and a feed conversion ratio of 4.4 when added to calcium-deficient diets.

Reducing the dietary calcium level resulted in a numerically lower tibia-breaking strength than the high calcium control, which started


to improve by adding at least 100g/t Panbonis to the diets.

This experiment showed that dietary supplementation with glycosylated 1,25-dihydroxycholecalciferol via Panbonis improved dietary mineral utilisation and production performance up to 35 days of age when using diets with reduced dietary calcium levels.



Tibia-breaking strength was improved with increasing Panbonis inclusion levels at low dietary calcium contents. ■

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# How to assess crop fill at key times after placement

Assessment of crop fill at key times after placement is a useful means of determining appetite development and checking that all poults have found feed and water.

by Aviagen Turkeys  
aviagenturkeys.com

If adequate crop fill is achieved, appetite development will be boosted, the early growth rate will be enhanced, ensuring the welfare and liveability of the birds are at a good level, and skeletal and intestinal gut development will be at the desired levels, affecting flock uniformity and production potential.

Optimising early development also supports the development of the immune system, which can have lasting effects on the bird's health.

## THE PROCEDURE FOR ASSESSING CROP FILL

Crop fill should be monitored between the first 5 and 8 hours after placement and will indicate if the poults have found feed and water.

During our studies, carrying out a crop fill analysis between 5 and 8 hours gives the strongest representation of how the poults have started and the early development of the poults. A minimum of 100 poults should be assessed in multiple locations to give accurate results.

Fig. 1. Example of crop fill recording sheet.

Hours after placement	8
Category	Number of poults in category
1. Empty	
2. Full but hard with original feed texture / Partially full	
3. Full, soft and rounded	
Total Recorded	110



### Equipment

- A catching frame.
- A pen or pencil.
- Paper to record crop fill.

### Step 1

Using a catching frame, separate approximately 25 poults at a time from different brooding rings or areas in the house.

### Step 2

Handling each poult with care, gently feel the crop of each poult in the catching area using your thumb and forefinger.

### Step 3

Score the contents of the crop of each poult (see Fig. 1) using the following categories:

1. Crops are empty; poults have not found feed or water.
2. Full but hard, the original feed texture felt partially full; poults have feed but little or no water.
3. Full, soft, and rounded - poults have found feed and water.

### Step 4

Calculate the percentage of poults in categories 2 and 3 by dividing the number of poults recorded in categories 2 and 3 by the total number of poults assessed and multiplying by 100 (see Fig. 2).

Fig. 2. Example calculations of poult crop fill percentage.

$$\begin{aligned} & \% \text{ poults in categories 2 \& 3} = \\ & \frac{\text{No. of poults in categories 2 \& 3} \times 100}{\text{Total number of poults assessed}} \\ & \frac{95 \times 100}{110} = 86.4\% \end{aligned}$$

### Step 5

Compare your results with the target crop fill assessment guidelines in Fig. 3.

## INTERPRETING RESULTS

### Key Points

- Crop-fill on or above target guidelines = No action required. Continue to monitor crop fill in future placements.
- A crop fill of 5% or more below target guidelines (e.g., 75% or lower at 8 hrs after placement) requires further investigation of the brooding practices required.

### Environment checks

- Houses are pre-heated at least 48 hours prior to their arrival.
- Poult comfort is optimum by monitoring and adjusting if needed.
  - Air temperature at poult height
  - Litter temperature
  - Relative humidity
- The light intensity is at the optimum level in the brooding area, and the lighting programme has been set correctly.
- Air quality is correct for young poults, with a maximum CO<sub>2</sub> of 2,500ppm at poult level.
- The airflow is correct, and there are no draught on the birds.

### Feed and water checks

- Poults have unrestricted access to well-presented feed and cool fresh water.
- Adequate supplementary feeders and drinkers.
- Provide small amounts of feed frequently in supplementary feeders.
- Supplementary (mini) drinkers are cleaned and refilled three times a day.
- Feed physical quality and water quality are correct. ■

Fig. 3. Target crop fill assessment guidelines.

Time of crop fill check after placement	Target crop fill (% of poults with categories 2 & 3 crops)
5 hours	>50%
6 hours	>60%
7 Hours	>70%
8 Hours	>80%

# Options for

## AntaPhyt NXT unites health, sustainability and profitability

German feed additives manufacturer Dr. Eckel Animal Nutrition has just released the newly improved formula of its flagship product, AntaPhyt.

[dr-eckel.de](http://dr-eckel.de)

The next generation offers a higher quantity of active ingredients, promising more effects with the same dosage.

Modern animal production methods and economic profitability must go hand in hand and it is important to minimise the use of medication without compromising health, growth, performance or product quality.

AntaPhyt is an antibiotic-free plant-based solution against gram-positive bacteria such as Clostridia and Strep. suis with uniquely effective hops as the main substance.

Thanks to its phytogenic components, AntaPhyt naturally supports intestinal health,

strengthens the immune system, and promotes animal performance.

The new AntaPhyt contains a higher quantity of active ingredients and has a broader spectrum of action. This means that AntaPhyt now offers even more benefits for animal health and performance at the same dosage:

- Effective against gram-positive bacteria.
- Supports intestinal health and the immune system.
- Promotes growth and performance.
- Improves feed conversion.
- Reduces medication costs.
- For sustainable, healthy production.

With AntaPhyt, producers can take on the most important challenges of modern animal production and ensure healthier animals, better performance, more homogeneous herds, improved feed conversion and lower medication costs.

## Supporting vitamin D and mineral metabolism

Challenging phases are known to occur in all poultry species. In laying hens, the deterioration of the eggshell quality towards the end of production is such a challenge.

[herbonis.com](http://herbonis.com)

Maintaining strong eggshells and laying persistency while minimising Ca mobilisation from bones are crucial for the hens' longevity. This can only be achieved by a proper Ca absorption mediated by a good vitamin D metabolism.

Broilers, on the other side require strong bones and muscles, and proper immune reaction to achieve best performances in this 'new era' of reduced administration of antibiotics and coccidiostats.

The quality of the day-old chick is now more than ever paramount for a successful production cycle. The breeder hen needs to be able to provide an optimal environment for the embryo.

This includes a stable eggshell to

prevent pathogens from entering and sufficient nutrients deposition in the egg for the development of the chick. Panbonis is a natural source of the bioactive form of vitamin D (1,25-dihydroxycholecalciferol). It is based on Solanum glaucophyllum, a plant that naturally produces 1,25(OH)2D in a glycosidic form (G-1,25(OH)2D). In contrast to other sources of vitamin D, G-1,25(OH)2D does not need further activation in the liver or kidney. 1,25(OH)2D stimulates calcium and phosphorus homeostasis, eggshell formation, bone mineralisation, fertility, and immune functions.

Supplying Panbonis to laying and breeder hens increases eggshell thickness and strength resulting in more saleable eggs and saleable hatch.

It also increases the weight and quality of day-old chicks and supports the immune system, muscle formation and bone integrity in broilers.

## Protecting poultry in the presence of coccidia

With the feed solution Oleostat, CCPA Group innovates and offers an alternative for coccidian risk management. This natural solution, to be incorporated into the feed, has proven its effectiveness in numerous station and field trials.

[groupe-ccpa.com](http://groupe-ccpa.com)

Coccidiosis management is a major economic issue for the poultry industry.

In addition to the economic losses associated with underperformance in the context of coccidian challenge, coccidiosis is also a gateway for other opportunistic infections.

Currently, solutions are based on the use of ionophores, chemicals, vaccines or combined programs. However, the use of these molecules is associated with limitations, including the need for specific production lines and the emergence of resistance.

Recently, increasing consumer demand for environmentally friendly products and animal welfare has encouraged the development of natural solutions, thereby reducing the use of chemical antimicrobials.

It is in this context that the CCPA Group has initiated a global development approach and developed Oleostat.

Oleostat is based on a blend of plant extracts, essential oils and spices selected following an extensive and careful literature screening of active phyto-ingredients and in vitro tests.

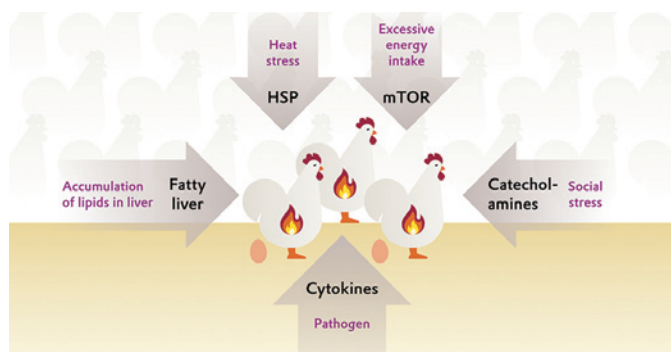
This blend acts in synergy and has proven effectiveness in supporting zootechnical performance in the presence of coccidia.

This solution is incorporated into the feed as part of an integrated response plan and is adapted to each breeding context. It has proven its effectiveness in the management of the physiological and zootechnical consequences of coccidia through numerous in vitro and in vivo trials around the world.

Oleostat allows:

- An optimal management of the consequences of coccidiosis
  - Contributing to the coccidian stress management
  - Supporting zootechnical performance under the coccidian challenge
- The use of a 100% natural solution to be incorporated into the feed
  - o Without withdrawal and risk of cross-contamination on feed production lines
  - An option when resistances to current strategies are observed
  - Personalized integration according to goals and context (continuous or rotation use or shuttle program).





## Managing inflammation effects with flavonoids

PhytriCare from Evonik Animal Nutrition, a plant-based aroma premix contains 10% flavonoids and was launched as their first phytogenic feed additive in conjunction with Dr. Eckel.

[animal-nutrition.evonik.com](http://animal-nutrition.evonik.com)

Flavonoids are naturally occurring secondary metabolites found in plants, fruits, vegetables, tea, and grapes. Few of them are small enough to ensure good digestibility and absorption.

Certain flavonoids have been scientifically proven to target specific biochemical pathways known to play major roles in inflammation.

It is crucial to preserve the inflammatory response, a key component of a healthy and effective immune system that contributes to an animal's ability to heal.

Crucially, some flavonoids have been shown to modulate, rather than suppress, the inflammatory response.

One of the main challenges in egg production is to keep laying rates as high as possible up to 100 weeks of age. Laying hens under constant stress can cause chronic inflammation.

If not properly addressed early

on, this physiological state can be problematic for production. The diversion of vital resources towards resolving inflammation means fewer are available for daily egg production.

This results in reduced productivity in terms of egg number and quality and, in some cases, early culling. Beyond productivity decline, chronic inflammation can increase the carbon footprint of production and impair profitability, as unhealthy livestock produce more emissions due to inefficient nutrient and feed metabolism.

PhytriCare IM's active plant extracts have been carefully selected to include a wide range of secondary metabolites, specifically those rich in flavonoids.

This results in a phytogenic solution that can mitigate these challenges by supporting the animal's natural immune response and overall well-being.

This can improve performance and productivity while contributing to more environmentally friendly and sustainable food production.

Additionally, its use has been proven to maintain gut integrity and promote optimal liver health, further enhancing performance and welfare.



## Essential oils where poultry need them the most

Coccidiosis is still one of the major challenges in the poultry industry that impact bird growth and profitability. Known as the most widespread and hard to manage disease in the broiler industry, coccidiosis can result in intestinal lesions, poor weight gain, poor feed conversion as well as reduced egg production.

[novus.com](http://novus.com)

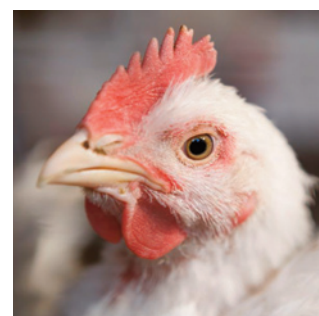
Research indicated a global cost of the disease of ~€12.7 billion at 2016 prices, equivalent to EUR 0.195 per chicken produced. Thanks to inflation, those numbers are likely higher today. Although there are coccidiostats and vaccines available, sub-clinical coccidiosis still occurs and opens the gate for enteric diseases like necrotic enteritis.

Coupled with ongoing efforts to reduce antibiotics in poultry production, nutritionists and producers are looking to feed additives to help reduce the risk of coccidiosis and similar health challenges.

In the category of eubiotics, the essential oils thymol and carvacrol are shown to be highly effective in supporting gut health against pathogens that poultry can encounter during their lives.

But it's not enough to simply add these products to a bird's diet. Ensuring these essential oils can reach as much of the digestive tract as possible is critical for an effective gut health program.

Next Enhance Feed Solution from Novus is a combination of thymol and carvacrol protected by microencapsulation that helps to ensure a controlled release throughout the gut, allowing the essential oils to reach the lower



parts of the intestinal tract. While positively affecting both feed conversion ratio and growth, in trials Next Enhance 150 is also shown to offer gut health benefits even in birds challenged with coccidia.

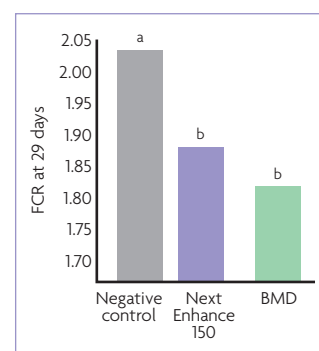
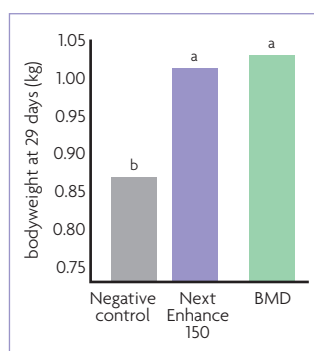
Research with broilers shows Next Enhance 150 supports:

- Effective anti-coccidiosis programmes.
  - Adaptive immune response and innate immune response management.
  - Inflammation management
- Improvements in feed efficiency (average improved FCR of 3.6% at the recommended 30-60g/t).
- Improvements in body weight (average improved BW/BWG of 2.9% at the recommended 30-60g/t).

In breeders, Next Enhance 150 is shown to:

- Support gut health; fewer health challenges mean more energy to build chicks.
- Enhance hatchability
- Foster a heavier chick bodyweight at hatch.

Easy to handle and stable under pelleting, expanding and extruding, this intelligent nutrition blend of essential oils is perfect for feed mills and on-farm applications.



# Options for phytogenic feed additives



## The next generation of phytogenic technologies

NUQO has emerged as a leading innovator specialising in the microencapsulation of metabolites derived from plants and seaweeds (known as phytogenics and phycogenics).

[nuqo.eu](http://nuqo.eu)

The demand for sustainable technologies based on plant extracts is growing, yet only a handful of companies can ensure key attributes: clear and transparent composition, high concentration, excellent stability, optimally controlled release, and desirable physical properties, along with proven efficacy demonstrated through extensive field trials, controlled studies, and published research.

Nuqo Nex stands out as the premier micro-encapsulation of phytogenics and phycogenics. NUQO has cultivated expertise in plant-based solutions and is recognised as a trailblazer in harnessing beneficial metabolites from marine algae.

Through its proprietary manufacturing process, NUQO achieves significantly higher concentrations and stability compared to most available 'phytogenic solutions' on the market.

The active ingredients in Nuqo Nex are shielded and released precisely within the digestive tract of poultry to enhance digestive functions, support gut integrity, and promote gut health, thereby maximising feed conversion efficiency and animal performance.

Nuqo Nex has undergone over 30 trials worldwide, spanning various conditions—from field trials to controlled settings, and

standard diets to comparisons against competitor products. This extensive research has resulted in multiple scientific publications and presentations at prestigious congresses.

The research underscores the consistent outcomes achieved, benefiting both broilers and layers. Its concentrated formulation and micro-encapsulation technology ensure reliable delivery of active ingredients, irrespective of feed type or production constraints faced by feed producers, often at lower doses compared to most plant-based alternatives.

Experts widely recommend encapsulated technologies for applying phytogenics to mitigate the instability and volatility of certain molecules, but there are significant disparities between what some claim is micro-encapsulation and reality, few products can substantiate this claim.

The research supporting Nuqo Nex, along with collaborations with nutritionists and customers, demonstrates its ability to significantly enhance feed conversion safely and consistently. Feed producers can confidently use Nuqo Nex to boost performance or reformulate feeds to reduce costs.

NUQO collaborates closely with customers to refine feed formulations, utilise diverse raw materials, and maintain feed quality while optimising costs and operational margins.

These benefits have been extensively validated through research, publications, and real-world success stories with customers globally, across both broiler and layer poultry production.

## Innovative phytogenic eubiotic technologies

The Orego-Stim Range provides innovative phytogenic, eubiotic technologies formulated from Anpario's unique source of consistent, high-quality, 100% natural oregano essential oil.

[anpario.com](http://anpario.com)

Developed to manage intestinal health and performance in all livestock species, products in the range support optimum gut integrity and performance.

With flexible application options to suit all production systems, products can be added into feed, drinking water or milk.

Products available in our Orego-Stim range include;

- Orego-Stim TD



- Orego-Stim Powder
- Orego-Stim Liquid
- Orego-Stim MR
- Orego-Stim Aqua Range

These have been developed to enable flexibility in application and allow all enterprises to experience the benefits of Anpario's superior natural oregano essential oil feed additive.

### Benefits

Supports the animals' natural defensive mechanisms and immune function.

Aromatic properties of oregano essential oil can improve palatability, helping to encourage voluntary feed intakes, maintaining healthy appetite throughout critical stages of production.

Supports the animal through periods of stress.

## Alleviating oxidative stress and strengthening natural defences

The PhytoStar brand from Nutrex covers a range of products based on synergistic blends of plant-derived compounds carefully selected for improving the animals' fitness by alleviating oxidative stress and strengthening their natural defence.

[nutrex.eu](http://nutrex.eu)

Animals are continuously exposed to various stress factors, such as heat stress, pathogens, weaning, toxins, an unbalanced diet. Oxidative stress is the process that plays a central role in all these situations. It causes damage to cells and tissue and induces inflammation.

Countering this inflammation together with the repair of damaged tissue requires energy, meaning less energy is available for production, resulting in economic losses for farmers.

PhytoStar products contain a blend of carefully selected natural ingredients found in plants, such as cinnamon, garlic, oregano, rosemary or thyme.

Through stimulation of antioxidant production and modulation of the immune system, PhytoStar strengthens the animals' health and production efficiency. PhytoStar's key distinguishing benefits are:

- Reduces oxidative stress.
- Improves feed efficiency.
- Enhances pathogen and toxin resistance.
- Protects liver and kidneys.
- Promotes a healthy gut.

PhytoStar's key distinguishing properties:

- Standardized levels of bioactive components.
- Safe and easy to handle.
- Strategic component in ABF production.





# The perfect start for your flock: guidance to optimise gut health

The preparations for the onset of lay in a laying hen are marked by significant metabolic and hormonal changes, environmental changes and changes in nutritional requirements.

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The metabolic and hormonal changes are essential for the development of the reproductive system, particularly the ovaries and the oviduct, as they play a major role in egg production.

During the first weeks on the rearing farm, it is important to support the transformation from a small, fully dependent, day-old chick into a good-quality pullet.

During the final phase of rearing and at the start of the laying period, we need to support the transformation from a pullet into a productive and robust laying hen.

## CAREFUL MONITORING

By carefully monitoring the flock and recording and analysing the data the flock provides to you, it will be easier to establish an appropriate feeding programme for the hens, which will be able to support them through the various stages of growth and production.

When the reproduction organs start to develop, the laying hen requires more energy and water, resulting in a higher intake of these nutrients by the laying hen.

Besides, the nutrients that were previously solely used for growth and maintenance will also be needed to produce the egg and the eggshell.

To tackle this sudden increase in nutritional requirements, the laying hens (and other birds) have established unique physiological characteristics. In addition to the hens' ability to increase their feed intake significantly within just a few

weeks, they also develop unique bone characteristics, the so-called medullary bone.

The medullary bone functions as a calcium reservoir, and as soon as the hens' preparations for egg production have started, the laying hen can mobilise calcium for eggshell formation from the medullary bone. This specialisation has a major impact on the hen's total calcium metabolism.

Photo stimulation triggers a hormonal change by releasing the gonadotropin-releasing hormone (GnRH) from the hypothalamus, which does not only stimulate the follicle-stimulating hormone (FSH) but also the luteinizing hormone (LH) from the pituitary gland.

These GnRH and LH hormones are crucial for the development and release of the follicles, which form the basis for egg production.

The follicles produce the hormone oestrogen, better known as the "female hormone." Oestrogen stimulates oviduct development and the formation of egg yolks.

Overall, the transition from the rearing to the production phase is accompanied by stress. Not just related to the hormonal and metabolic changes that are increasing the stress in the laying hens or the immune responses related to the vaccinations, but also related to the transfer of the birds that happens on many occasions around the same time.

The good news is that there are tools to support the laying hens

during this specific period from a nutritional point of view.

The main focus should be on creating and maintaining optimal gut health, as this directly influences nutrient absorption and overall performance in later life.

Optimising gut health starts with minimising external nutritional stressors, like mycotoxins, hard-to-digest raw material or changes in feed structure.

- Mycotoxins can have detrimental effects on gut health. Regular monitoring of mycotoxin levels and applying methods to reduce the impact of the present mycotoxin is highly recommended.

- Especially during the phase of metabolic changes, enzymes can support nutrient utilisation and gut health.

- It is recommended to use at least a minimum dose of enzymes (including phytase and an NSP enzyme that is suitable for the raw materials used) at the start of lay.

- Using good-digestible and high-quality raw materials helps to improve nutrient utilisation without overloading the hen with metabolic pressure.

- Therefore, try to minimise the use of hard-to-digest raw materials. Next to this, try to prevent big differences in the inclusion of raw materials as well as differences in feed structure between different diets.

- Managing calcium levels in the different dietary stages is crucial, particularly during the early stages of egg laying.

- While calcium is essential for proper eggshell formation, excessive levels can negatively impact gut health and calcium metabolism. It is strongly advised to have a smooth transition (for example, in multiple steps) in calcium levels from the rearing phase towards the first layer phase.

- Some phytochemicals, pre- or probiotics, and organic acids have shown positive effects on gut health, mainly in reducing inflammation, improving intestinal barriers, or improving digestion. They can be of good support to minimise gut health disturbances.

- Coarse fibres have a positive impact on gut peristalsis and, therefore, on overall nutrient utilisation and digestive health. In the field, we see good results from adding 2% of coarse fibre materials (like oat hulls) to digestive health and feather cover.

## INTESTINAL INTEGRITY

A laying hen converts feed and water into eggs and faeces. For this reason, intestinal integrity is essential for maintaining the productivity and profitability of laying hens through the number of eggs produced per hen housed, the flock's laying persistency, feed conversion, egg weight and internal and external egg quality.

Having a close look at intestinal integrity and responding with nutritional intervention will increase the chance of having a successful flock.

We can conclude that to have a perfect start for your laying hen flock and to ensure the maximum genetic potential over the hens' lifetime, it is key to prioritise gut health until the peak of production is over. Various nutritional solutions can support you in your management practices to support the basis of a healthy and productive laying hen flock.

Regular flock monitoring, as well as adjusting the diet based on the hen's requirements, are crucial for long-term success in egg production and the overall well-being of your laying hen flocks. ■

# Getting chicks off to a good start to maximise performance

With antimicrobial resistance predicted to be the largest cause of human deaths by 2050, we urgently need to reduce our reliance on antimicrobials.

Historically, the animal production industry has used antimicrobials extensively to both prevent and control disease as well as promote growth.

by Dr Alexandra Desbruslais,  
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Anpario plc  
www.anpario.com

However, there is increasing research to demonstrate that the indiscriminate and repeated use of the same drugs is significantly increasing the prevalence of resistant bacterial strains.

Identifying alternative substances that can both prevent and mitigate disease as well as promote growth while not perpetuating the resistance crisis is no simple task; however, oregano essential oil is one viable option.

## OREGANO ESSENTIAL OIL

Oregano essential oil (OEO) is a phytochemical that has been widely researched and shown to support optimal gut function due to its antimicrobial, antioxidant and antiparasitic properties.

Essential oils (EO) form the basis of a plant's defence mechanisms, acting as a type of immune system. EOs are comprised of numerous compounds that each offer a function to protect the plant from microbial or physical attack.

Oregano essential oil contains over 100 different compounds, including carvacrol, thymol,  $\beta$ -caryophyllene, linalool,  $\gamma$ -terpinene and  $p$ -cymene.

The avian gastrointestinal tract is a complex and diverse organ, with both active and passive involvement in numerous systems and processes. Therefore, no single compound is likely to improve every aspect.

The complex composition of OEO facilitates its multifactorial activity on multiple gut processes and immune challenges, therefore allowing the gut to

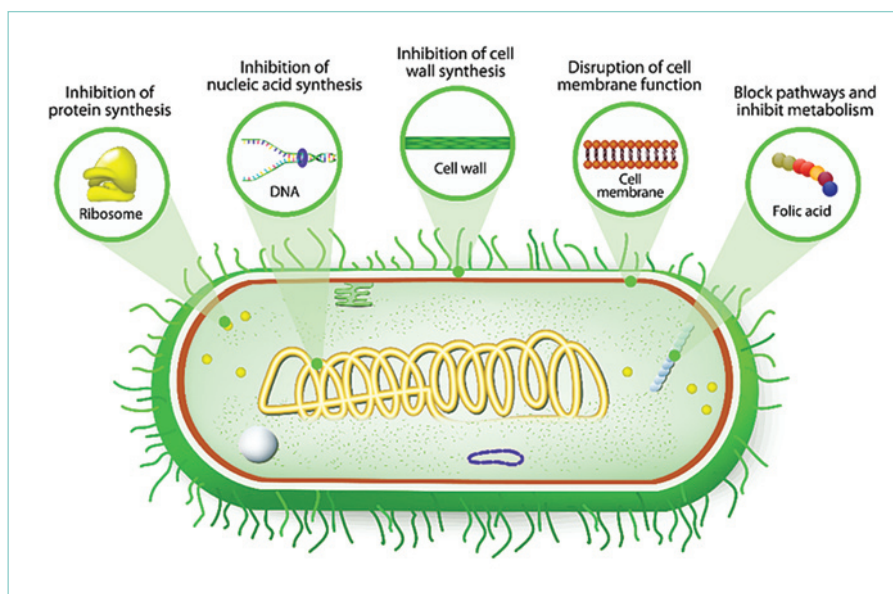


Fig. 1. The mechanisms of antibiotics.

function optimally, maximising absorption capacity and minimising valuable nutrient wastage.

Oregano has also been shown to act as a palatability aid, increasing feed intake, particularly in the very early stages of production.

## ESSENTIAL OILS AND ANTIMICROBIAL RESISTANCE

Antimicrobials work by preventing a mechanism that the microbe needs to survive and/or replicate, such as inhibiting protein synthesis or disrupting cell membrane function (Fig. 1).

When resistance occurs, the microbe evolves to prevent the mechanism of the antimicrobial from working.

The traditional broad-spectrum antimicrobials tend to target several of these mechanisms at the same time. While the multi-target mode of action of the broad-spectrum drugs was beneficial in terms of being able to treat an unidentified pathogen, they also indiscriminately wiped out many other microbes present in the gut, whether they served a beneficial function or not.

In recent years, more target-specific drugs have been developed; these tend to just target one or a limited number of mechanisms of the microbe.

While this prevents wiping out the majority of the microbiome, the single mode of action makes these types of drugs far easier for the microbes to adapt to and become resistant to. Essential oils do not seem to have the same resistance issues as antimicrobials. This is due to the numerous active compounds present in natural whole oils.

The different active components work to overcome multiple microbial mechanisms, making it far more difficult for the microbe to evolve to become resistant.

## EUBIOSIS

Eubiosis is a state of balance within the intestinal environment whereby the gut can work optimally without the challenge of pathogens. Eubiotics are substances that promote this state of balance. Rather than manually manipulating the microbes in the gut as with anti- and pro-biotics, eubiotics support the favourable microbes in the gut, facilitating the establishment of a balanced, healthy intestinal microbiome.

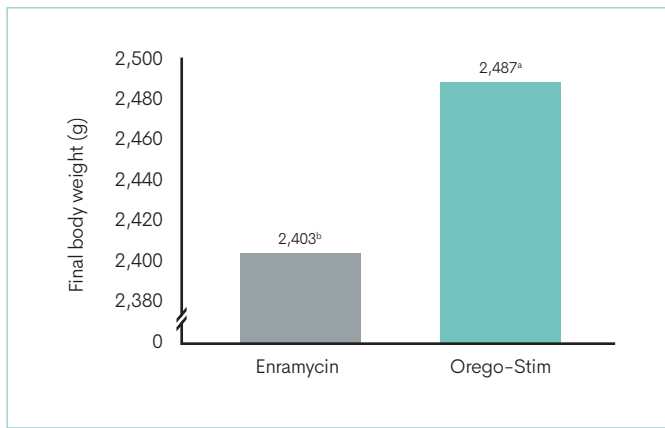


Fig. 2. Comparison of final body weights for birds supplemented with enramycin compared to birds supplemented with OS.

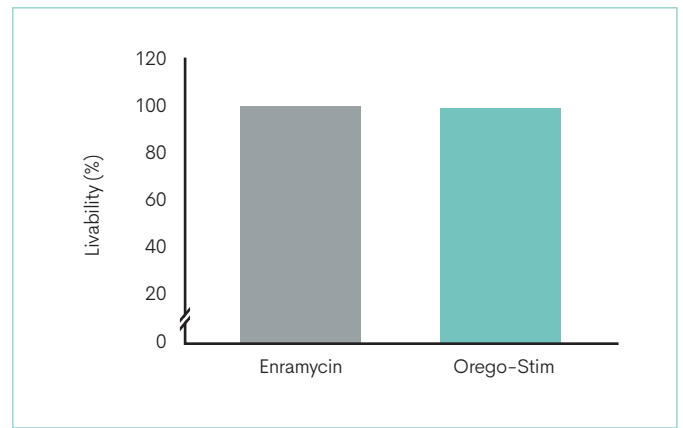


Fig. 3. Comparison of Liveability between birds supplemented with enramycin compared to birds supplemented with OS.

By achieving this, eubiotics help the bird prevent the occurrence of pathogenic colonisation and subsequent physical damage to intestinal structures, facilitating optimal functionality of the gut and therefore optimal absorption capacity.

In young birds, establishing an early favourable gut environment has been shown to benefit overall lifetime performance.

The immature intestinal tract poses several challenges when it comes to feed additives. It has been well demonstrated that endogenous enzyme production is very low in the starter period, only reaching peak production at around 21 days of age.

Therefore, additives that are encapsulated with either a lipid- or protein-based substance will be very poorly utilised. Likewise, transitioning young birds from nutrition from the yolk sack over to solid feed can also be challenging.

The yolk sack contains nutrients for the chick for the first few days post-hatch; however, it has been shown that failure to transition to solid feed within the first 48 hours can be highly detrimental to performance.

Therefore, a palatable starter feed is essential.

## THE USE OF OREGANO ESSENTIAL OIL IN BROILER PRODUCTION

Orego-Stim (OS) is a single-sourced OEO-based supplement (Anpario plc, UK) derived from 100% natural whole oil. With over 25 years of research, OS has been shown to consistently support the health and performance of livestock.

A recent university study compared the supplementation of broilers with either OS or enramycin, an antibiotic used for both disease prevention and growth promotion.

The study raised 180 Ross 308 broilers from 0–35 days.

Birds were housed at 15 birds per pen and 6 pen replicates per treatment, with ad libitum access to feed and water.

Corn and soy diets were supplemented with either 10 ppm of enramycin (the standard veterinary dose) or 300g/t of OS throughout the study.

Feed consumption, performance and mortality were assessed.

Results found that the OS-supplemented birds were not only able to match the performance of the antibiotic-supplemented birds, but at 35 days, the OS group achieved significantly higher body weights compared to the enramycin group (Fig. 2).

The OS-supplemented group achieved a 4-point reduction in FCR compared to the enramycin group, suggesting that OEO can offer superior performance benefits to the antibiotic growth promoter. There was no significant difference in liveability between treatments (Fig. 3).

## ECONOMIC IMPACT

When the economic impact of the study was assessed, the additional live weight achieved resulted in an extra £0.10 of return per bird, and even when the cost of additives and feed consumed was accounted for, this resulted in an additional £0.08 per bird (Table 1) compared to the antibiotic treatment.

## SUMMARY

Extensive research has shown that establishing a favourable microbiome as early as possible is essential for the lifetime health and performance of the bird.

Preventing microbial imbalances in the chick before they occur substantially reduces the need for later veterinary intervention and the associated use of antimicrobials, which further perpetuate the antimicrobial resistance crisis.

The use of oregano essential oil has undergone decades of research to demonstrate its efficacy in supporting the health and performance of livestock without the high risk of microbial resistance found with traditional antimicrobials such as antibiotics, anthelmintics, coccidiostats, etc.

This study demonstrates the efficacy of Orego-Stim as a viable alternative to prophylactic and growth-promoting antibiotics, both in terms of superior performance and improved economic impact.

Therefore, oregano essential oil could offer a valuable tool in the fight against antimicrobial resistance while getting young birds off to the best start. ■

References are available from the author on request

Table 1. Economic Analysis.

	Control	Orego-Stim Liquid
Average Feed Intake	3,601g	3,626g
Cost of feed per bird (including cost of additive) over 5 weeks @ £350/mt + additive costs	£1.26	£1.28
Cost of feed per 1 million birds	£1,261,430	£1,279,978
Final body weight	2403g	2487g
Liveweight price @ £1.20/kg	£2.88 per bird	£2.98 per bird
Profit after feed costs £1.62, and Profit after feed costs per 1,000,000 birds.	£1,620,000	+ £1,700,000
Difference per 1,000,000 birds		+ £80,000

# Focus on Research

## Whole genome sequences, De novo assembly, and annotation of antibiotic resistant campylobacter

Campylobacter is a leading bacterial cause of gastrointestinal infections in humans and has imposed substantial medical and public health burdens worldwide. Among a total of 39 species in the Campylobacter genus, *C. jejuni* is the most important species responsible for approx. 90% of human Campylobacter illness. Most cases of the infection were acquired by ingesting undercooked poultry meat due to the high prevalence of Campylobacter in the products.

Here (**Microorganisms 2024, 12(1) He, Kanrar, Reed, Lee, Capobianco**) we reported the dataset of raw sequences, de novo assembled and annotated genomes of *C. jejuni* strains S27, S33, and S36 recently isolated from retail chicken by using PacBio highly accurate long-read sequencing technology combined with bioinformatics tools. Our data revealed several virulence and antibiotic resistance genes in each of the chromosomes, a type IV secretion system in the plasmid (pCjS33) of *C. jejuni* S33, and a type VI secretion system and a phage in the plasmid (pCjS36) of *C. jejuni* S36.

This study not only provides new sequence data but also extends the knowledge pertaining to the genomic and functional aspects of this important foodborne pathogen, including the genetic determinants of virulence and antibiotic resistance.

### Biosecurity implementation on large-scale poultry farms in Europe: A qualitative interview study with farmers

Biosecurity is an essential tool for rearing healthy animals. Biosecurity measures (BMs) are well known in poultry production, but it is difficult to assess actual implementation on farms. The aims of this qualitative study (**Prev. Vet. Med. Vol. 224, March 2024, 106119 Souillard, Allain, Dufay-Lefort, Rousset, Amalraj, Spaans, Zbikowski, Piccirillo, Sevilla-Navarro, Kovács, Le Bouquin**) were (1) to provide an overview of biosecurity implementation according to poultry farmers in Europe; and (2) to better understand the reported reasons and potential obstacles for not implementing the measures.

In seven European Union Member States, 192 farmers (118 under contract with a company and 68 independents) working in seven different categories of poultry production were interviewed on 62 BMs to determine the frequency of implementation and the reasons for non-implementation.

Most of the replies ( $n = 7791$ ) concerning BM implementation were reported by the farmers as "always" implemented (81%), statistically higher for breeders (87%) and layers (82%) and lower

for independent farms versus farms under contract with a company (79.5% and 82.5%, respectively). Regardless of the poultry production category, the most frequently implemented BMs declared by the farmers were daily surveillance of birds, rodent control and feed storage protection.

Standard hygiene practices were also mentioned as high-implementation measures for most production categories, with some deficiencies, such as rendering tank disinfection after each collection and, for meat poultry, disinfection of the feed silo and bacterial control of house cleaning and disinfection between each cycle.

The entry of vehicles and individuals onto poultry farms, especially during critical points of eggs collection for breeders and layers, as well as the presence of other animals, such as the "all in/all out" practice, particularly in layers and ducks, were also reported as the least commonly practised measures.

The main reasons for not implementing the measures ( $n = 1683$  replies) were low awareness and poor knowledge of the expected benefits of biosecurity ("no known advantages" 14%, and "not useful" 12%), the lack of training ("not enough training" 5% and "advice" 7%), lack of time (19%), and financial aspects (17%).

Despite the good overall biosecurity mentioned by the farmers, these findings highlight certain deficiencies, suggesting room for improvement and the need for targeted and tailored support of poultry farmers in Europe.

### Assessing the risk of antimicrobial resistant enterococcal infections in humans due to bacitracin usage in poultry

Bacitracin is an antimicrobial used in the feed or water of poultry in the U.S. for the prevention, treatment, and control of clostridial diseases such as necrotic enteritis.

Concern has been raised that bacitracin can select for antimicrobial-resistant bacteria that can be transmitted to humans and subsequently cause disease that is more difficult to treat because of the resistance.

The objective of this study (**J. Food Prot. Volume 87, Issue 5, May 2024, 100267 Randall, Singer, Johnson**) was to perform a quantitative risk assessment (QRA) to estimate the potential risk in the U.S. of human infection with antimicrobial-resistant *Enterococcus faecalis* and *E. faecium* derived from chicken and turkey products as a result of bacitracin usage in U.S. poultry.

The modelling approach estimated the annual number of healthcare-associated enterococcal infections in the U.S. that would be resistant to antimicrobial therapy and that would be derived from poultry sources because of bacitracin use in poultry. Parameter estimates were developed to be "maximum risk" to overestimate the risk to humans.

While approximately 60% of *E. faecalis* and *E. faecium* derived from poultry were predicted to possess bacitracin resistance based on the presence of the bcrABDR gene locus, very few human-derived isolates possessed this trait. Furthermore, no vancomycin or linezolid-resistant strains of *E. faecalis* or *E. faecium* were detected in poultry sources between the years 2002 and 2019.

The model estimated the number of antimicrobial-resistant *E. faecalis* and *E. faecium* cases per year that might resist therapy due to bacitracin use in poultry as 0.86 and 0.14, respectively, which translates to an annual risk estimate for *E. faecalis* of less than 1 in 350 million and for *E. faecium* of less than 1 in 2 billion for members of the U.S. population.

Even with the use of risk-maximising assumptions, the results indicate that

# Poultry evisceration and cross-contamination - effectiveness of local air extraction and mechanical barriers

Poultry evisceration poses a risk of airborne carcass contamination with pathogens. While prior research has identified this hazard, ventilation strategies to mitigate it remain underexplored.

This study (J. Food Eng. online May 2024, 112164 Lichtner, Cetin, Kriegel) employed computational fluid dynamics (CFD) simulations using Star-CCM+ software to evaluate the efficacy of local exhaust ventilation and mechanical barriers against airborne contamination. Particle deposition under various scenarios was assessed. The simulations demonstrated near-complete prevention of both direct and indirect airborne contamination with local exhaust ventilation.

Mechanical barriers surrounding carcasses significantly reduced particle deposition (18–96%) on subsequent carcasses, although localised increases in contamination were observed in specific circumstances. Overall, implementing local exhaust ventilation and, to a lesser extent, mechanical barriers, shows promise for minimising carcass contamination during poultry evisceration. These findings warrant further research to refine ventilation design and operational parameters for enhanced biosecurity in poultry processing facilities.

there is a high probability that the use of bacitracin according to label instructions in U.S. poultry presents a negligible risk to human health.

## Interventions to reduce Salmonella and Campylobacter during chilling and post-chilling stages of poultry processing: a systematic review and meta-analysis

Salmonella and Campylobacter are common bacterial hazards causing foodborne illnesses worldwide. A large proportion of Salmonella and Campylobacter illnesses are attributed to contaminated poultry products that are mishandled or undercooked.

Processing interventions such as chilling and post-chill dip are critical to reducing microbial contamination of poultry.

In this study (Poult. Sci. Vol. 103, Issue 4, April 2024, 103492 Leone, Xu, Mishra, Thippareddi, Singh) a comprehensive search of the literature published between 2000 and 2021 was conducted in the databases Web of Science, Academic Search Complete, and Academic OneFile.

Studies were included if they were in English and investigated the effects of interventions against Salmonella and/or Campylobacter on whole carcasses and/or parts during the chilling or post-

chill stages of poultry processing. Random-effects meta-analyses were performed using the "meta" package in the R programming language. Subgroup analyses were assessed according to outcome measure reported, microorganism tested, processing stage assessed, and chemical treatment used.

The results included 41 eligible studies: 18 studies reported results of 28 separate interventions against Salmonella and 31 reported results of 50 separate interventions against Campylobacter.

No significant difference ( $P > 0.05$ ) was observed when comparing the combined mean difference of all interventions targeting Salmonella to the combined mean difference of all interventions targeting Campylobacter or when comparing chilling times within each pathogen subgroup.

For analyses examining antimicrobial additives, peroxyacetic acid (PAA) had the largest reduction against Salmonella population regardless of chilling time ( $P < 0.05$ ). PAA also had the largest reduction against Campylobacter population and prevalence during primary chilling ( $P < 0.01$ ). Air chilling showed a lower reduction for Campylobacter than any immersion chilling intervention ( $P < 0.05$ ). Chilling time and antimicrobial use during poultry processing had varying effects depending on the pathogen and outcome

measure investigated (concentration or prevalence). High heterogeneity and low sample numbers in most analyses suggest that more high-quality research that is well-designed and has transparent reporting of methodology and results is needed to corroborate the results.

## Are there consistent effects of gut microbiota composition on performance, productivity and condition in poultry?

Microbiome of the gastrointestinal tract (GIT) has been identified as one of the crucial factors influencing the health and condition of domestic animals.

The global poultry industry faces the challenge of understanding the complex relationship between gut microbiota composition and performance-related traits in birds. Considerable variation exists in the results of correlational studies using either 16S rRNA profiling or metagenomics to identify bacterial taxa associated with performance, productivity, or condition in poultry (e.g., body weight, growth rate, feeding efficiency, or egg yield). In this review (Poult. Sci. Vol. 103, Issue 6, June 2024, 103752

Marková, Kreisinger, Vinkler) we survey the existing reports, discuss variation in research approaches, and identify bacterial taxa consistently linked to improved or deteriorated performance across individual poultry-focused studies.

Our survey revealed high methodological heterogeneity, which was in contrast with the vastly uniform focus of the research, mainly on the domestic chicken (*Gallus gallus*) as a model.

We also show that the bacterial taxa most frequently used in manipulative experiments and commercial probiotics intended for use in poultry (e.g., species of *Lactobacillus*, *Bacillus*, *Enterococcus*, or *Bifidobacterium*) do not overlap with the bacteria consistently correlated with their improved performance (*Candidatus* *Arthromitus*, *Methanobrevibacter*).

Our conclusions urge for increased methodological standardisation of veterinary research in this field. We highlight the need to bridge the gap between correlational results and experimental applications in animal science.

To better understand causality in the observed relationships, future research should involve a broader range of host species that includes both agricultural and wild models, as well as a broader range of age groups.

# Focus on Research

## Effect of on-farm poultry litter composting processes on physicochemical, biological, and toxicological parameters

Poultry litter is a valuable source of nutrients for crop production, but its use in agriculture can lead to environmental and public health concerns due to the presence of pollutants, antibiotic-resistant bacteria (ARB) and antibiotic-resistant genes (ARGs). In this study (**Waste Management Vol. 174, 15 February 2024, Pages 310–319 Okada, Young, Pérez, Pellegrini, Carciochi, Lavallén, Ponce, Dopchiz, Guijarro, Franco, Martino, Rizzo**) we compared the effect of different on-farm poultry litter composting processes on physicochemical, biological, and toxicological parameters, as well as on the occurrence of antibiotics and resistant *Escherichia coli*. The composting treatments consisted of passively-aerated piles C:N = 19 (PAC19), mechanically-aerated piles C:N = 19 (MAC19), and mechanically-aerated piles C:N = 30 (MAC30). Poultry litter composting led to a significant reduction of antibiotic residues, enteroparasites and antibiotic resistant *E. coli*.

### Comparative analysis between multi-strain probiotics and antibiotic as starter feed supplement of poultry on growth performance.

The unobstructed use of antibiotics in poultry production has emerged as a major driving force of antibiotic resistance particularly in developing countries.

This study (**Vet. Anim.Sci. Vol. 24, June 2024, 100346 Hossain, Sardar, Afsana, Datta, Habib**) aimed to determine the functional roles of lyophilized native probiotic based starter feed on performance, selective serum metabolites and meat quality of poultry.

A total of 90 day-old birds (30 broilers, 30 layers and 30 ducks) were divided into three treatment groups. Isolated native probiotic strains from chicken intestine were used to prepare lyophilized probiotic

samples. Growth performances were measured manually, serum biochemicals analysis were carried out using diagnostic kits, and meat quality was determined through Kjeldahl method and Soxhlet method. When compared to groups receiving antibiotics, the introduction of lyophilized probiotics in starter feed significantly ( $P < 0.05$ ) increased body weight gain, feed intake, and feed conversion ratio.

The birds' serum calcium and protein levels likewise exhibited a similar pattern.

Comparing the groups receiving antibiotics, the protein content of the meat revealed significant ( $P < 0.05$ ) variations. Significant ( $P < 0.05$ ) reduced level of serum total cholesterol, triglycerides and fat content in meat was observed when compared to antibiotic-fed group.

### Response of broiler breeder pullets when fed hydrolyzed whole yeast from placement to 22 wk of age

The study (**Poult. Sci. Vol. 103, Issue 3, March 2024, 103383 Maina, Schulze, Kiarie**) examined the effects of feeding broiler breeder pullets hydrolyzed whole yeast (HY) from hatch to 22 wk of age (WOA). A total of 524-day-old Ross 708 pullets were placed in pens (~24 birds/pen) for the starter (0–4 WOA) and grower (5–18 WOA) phases, then transferred to the egg production facility at ~20 birds/pen for the prelay phase (19–22 WOA).

Two diets were allocated to pens (0–18 WOA; n=11) and (19–22 WOA; n=12).

The diets were a control corn and soybean meal diet formulated to meet specifications and control plus 0.05% HY (HY). Birds had ad libitum access to feed in the first week and daily feed allocation based on pen BW from 2 WOA.

Body weight (BW) and uniformity (BW CV) were monitored. Boosters for infectious bronchitis and New Castle disease vaccines were administered at 18 WOA.

One pullet/pen was randomly selected, weighed, bled for plasma biochemistry, and necropsied for organ weights, ceca digesta for short-chain fatty acids (SCFA), and leg bones morphometry.

In the starter and grower phases, birds fed HY were lighter and gained less ( $P < 0.05$ ) than control birds. However, there were no diet effects ( $P > 0.05$ ) on growth, the BW prelay phase, or BW uniformity throughout the trial. There were no ( $P > 0.05$ ) diet effects on breast, gastrointestinal, liver and bursa weights, serum antibody titers, plasma biochemistry, SCFA and bone attributes.

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*Research is reprinted with permission of Elsevier.*

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**SEPT. 2024**  
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# SPACE

AT THE HEART OF FARMING

THE INTERNATIONAL EXHIBITION FOR ANIMAL FARMING

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space.fr

# International News

## Decontaminate using the power of bio-oxidation



Proper ventilation when brooding chicks is very important, farmers need to ventilate properly to reduce stress from diseases and manage ammonia levels. It is a fine balance because chicks also need to be protected from excessive drafts. So, how can a farmer properly maintain this balance?

BioOx Air Cleaning Systems use the power of bio-oxidation, and there is not a single HEPA, UV or ionic-based system on the market that offers complete localised air decontamination like this.

Our bio-reactors offer complete contaminant destruction down to 0.0001 microns and can clean air in large-square-foot facilities, such as poultry houses and other facilities used in animal agriculture.

Ammonia is created when the nitrogen in poultry faeces is broken down by bacteria. Exposure to high ammonia concentrations negatively affects the development of



the birds' immune system as well as their intestinal histomorphology. In our comprehensive, 20-day study with 20,000 chickens per house, the house with the BioOx Air Cleaning System running saw a 48% reduction in measured ammonia with the same vent time and vent box opening as the control house without our Air Cleaning System (both houses were identical in age and size).

Furthermore, the house that used our air cleaning system saw a 32% reduction in mortality over the control house without BioOx in our study.

Additionally, our bioreactors respond quickly to real viral and bacterial epidemiological outbreaks spread via air.

Various experiments have proven that BioOx is effective with pathogen destruction (H1N1, Legionella, Influenza B, and MRSA were studied).

Overall, the house that used our BioOx Air Cleaning System saw a 32% reduction in mortality over the control house without BioOx in our study.

[bioox.us](http://bioox.us)



## Effects of yeast cell wall extract supplementation



A new study highlights the significant positive effects of yeast cell wall extract supplementation on layer performance during mycotoxin challenges, Alltech announced.

Published in March 2024 in the journal *Toxins*, "Meta-Analysis of the Effects of Yeast Cell Wall Extract Supplementation during Mycotoxin Challenges on the Performance of Laying Hens" demonstrated that the inclusion of yeast cell wall extract (YCWE, Mycosorb, Alltech Inc.) supplementation during mycotoxin challenges results in an increase in layers' body weight by 12.5g, and a substantial increase in egg production and egg weight by 4.2% and 1.37g, respectively.

The meta-analysis showed that layers fed mycotoxins experienced lower body weight (by 50g), decreased egg production (by 6.3%), and reduced egg weight (by 1.95g) compared to control-fed birds.

Based on results from the meta-analysis, production and profitability calculations were made, resulting in:

- +2.7 eggs per hen housed (HH) over 9.5 weeks
- +29.7g edible protein output per hen housed
- 4.65:1 ROI

The study assessed a total of 25 trials, and the data was extracted from 8 trials that met the inclusion criteria. These trials represented a total of 12 treatments and involved 1,774 laying hens. It confirms that mycotoxin presence had an impact on body weight, egg production and egg weight, and the role of YCWE mitigated the effects on egg production and quality, even at high mycotoxin levels.

Overall, the meta-analysis underscores the importance of addressing mycotoxin challenges in layer production and highlights the potential role of YCWE in minimising these effects and enhancing profitability.

[knowmycotoxins.com](http://knowmycotoxins.com)

## Breeder Focus 2.0 held in the Netherlands



Early this year, Aviagen EPI welcomed 120 delegates from across the Netherlands and Belgium to the Breeder Focus 2.0 seminar in Eindhoven, the Netherlands.

The event, a regional follow-up to the European Breeder Focus seminar in Edinburgh in autumn 2023, brought together a wide range of delegates, representing customers, the feed sector, veterinarians, hatching egg traders, equipment companies, hatcheries and rearing integrations. Henk Steenblik, head sales manager for Aviagen EPI, pulled together a comprehensive agenda designed to navigate pressing industry challenges and promote knowledge exchange

between the attendees and speakers. Presentations included:

1. Research and development update.
2. Optimising parent stock (PS) nutrition.
3. Handling market challenges.
4. Enhancing storage and transport protocols.
5. Male management best practices.

The seminar ended on a high note, with vibrant discussions during a question-and-answer session.

[aviagen.com](http://aviagen.com)

## More than 35 years service



AstroTurf has been used for more than 35 years as a nest pad for hens. AstroTurf is considered to be the market leader in this

application, as most nest manufacturers specify it.

When designing the product, they knew it had to respond to market needs and be superior to all existing nest pads.

After more than 35 years of experience and improvements, we can conclude that the product really meets our expectations and those of the poultry sector.

The following advantages have been proven in practice:

- Can be used in all nest types for both breeders and layers.
- The number of floor eggs is reduced to a minimum.

• Cleaner eggs, free of bacteria and fewer broken eggs.

- Hens prefer AstroTurf.
- Made of polyethylene, it is bacteria, mould resistant.
- No need for traditional litter to be used, saving labour costs.
- Any pad size can be cut from the rolls.
- Can be cleaned and maintained easily (dirt falls through the holes).
- Rounded blade tips minimise contact with eggs and make them cleaner.
- Farmers keep the nest pads for more than 4 or 5 flocks.

[astroturfpoulturypads.com](http://astroturfpoulturypads.com)

# International News



At Nutreco's Garden of the Future, we encompass all our phytotechnology activities under one roof and focus on plants that have never been used before in the livestock and aqua feed industry as well as using existing plants in new and innovative ways. Our ground-breaking research is bringing fresh perspectives to our industry so that we can create new and innovative products and solutions. Our activities include screening of plant candidates; designing biological modelling to rank the plant's potential; analysing plant chemotype; developing and executing proper methods to propagate the selected plant; and developing growing protocols for our trusted suppliers to grow/care for the plants at different places around the globe. And finally, we define how to process the plant to make it suitable for use as feed additives or feed materials.

nutreco.com

## A milestone for the poultry industry



Nutrex are pleased to announce that the European Commission has granted authorization for placing Nutrase P, a highly efficient 6-phytase enzyme, on the European market.

This registration, granted by the European Commission following the positive evaluations by the European Food Safety Authority (EFSA), marks an important milestone in our commitment to innovation and support for the poultry industry.

Nutrase P is a unique bacterial 6-phytase that efficiently releases

phosphate from phytate, thereby improving phosphorus digestibility and reducing the need for phosphate addition in the feed.

NutraseP's 6-phytase enzyme delivers wide-ranging health & economic benefits for poultry production industry

This registration represents a significant milestone and reflects Nutrex' unwavering commitment to innovation and delivering top-quality nutritional solutions. We firmly believe that Nutrase P will play a pivotal role in enhancing the poultry industry across Europe by improving nutritional efficiency and promoting sustainable production practices.

nutrex.eu



## Leading feed additive for broilers



ADM (NYSE: ADM) has performed a comprehensive life cycle assessment (LCA) for Xtract 6930, a plant extract-based feed additive for monogastric animals.

LCA is a method to evaluate and quantify the potential environmental impacts throughout the supply chain of a product or service. Notably, ADM has compiled LCA results of Xtract 6930 use on broiler operations within four global regions: Asia, Latin America, Europe and the USA

These results suggest that Xtract 6930 is a useful tool to mitigate the environmental footprint of the broiler meat sector. The use of ADM's feed additive has shown a reduction of at least 1.9% of the carbon footprint of live broilers and at least 2.8% of the carbon footprint of broiler meat production.

Which means 1kg CO<sub>2</sub> eq. spent using Xtract results in savings of 75kg CO<sub>2</sub> eq. in live broiler farming and a savings of 100kg CO<sub>2</sub> eq. in broiler meat processing.

Additionally, Xtract 6930 has shown a negligible influence on the environmental footprint of broiler feed. Xtract 6930 leverages a combination of microencapsulated active substances found in aromatic plants and spices with demonstrated physiological effects on poultry.

A thorough performance analysis of its application and results in broilers shows that the feed additive supports increases in carcass yield, weight and breast weight, as well as improved feed conversion rates.

ADM's LCA analysis was performed in collaboration with Blonk Consultants, in line with ISO 14040 and ISO 14044 standards, and following European Union (EU) and Food and Agriculture Organisation (FAO) guidelines for the sector.

A panel of 3 independent, third-party reviewers then verified the accuracy of the LCA and confirmed the validity of the conclusions.

adm.com

## Rustic Gold receives RSPCA approval



Aviagen is proud to announce that its Rustic Gold bird has been accepted for use under the highly respected RSPCA Assured animal welfare scheme.

The Rustic Gold is the latest addition to Aviagen's Rowan Range of slower-growing and colored breed options to be awarded the accreditation, alongside the previously approved Ranger Gold and Ranger Classic.

With a mix of brown and white plumage, the slower-growing Rustic Gold brings a balance of outstanding welfare and performance, combined with strong feed efficiency.

aviagen.com

## Strategic partnership



Nuproxa Mexico, a leading provider of high-quality, nature-based solutions to advance animal nutrition and health, has entered into a partnership with Innovad and their Swiss subsidiary Herbonis.

This alliance expands Nuproxa's offerings in the Mexican market, introducing innovations such as Panbonis, a natural and bioactive source of vitamin D3, Escent, supported by its Myco-Marker biomonitoring tool, and the full range of the Innovad Solution Platform. The representation of Innovad and Herbonis products in Mexico, strengthens Nuproxa's mission to provide innovative natural options to the market.

innovad-global.com

## International Mini Ads



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A HARMONIA & BIO 2001 2006 certified company  
www.growell.com

**Naturally controlling Coccidiosis in Poultry with Coxynil®**  
Powder & Liquid form



## Zupport for antimicrobial use stewardship principles



Seven additional private sector leaders announce

support for antimicrobial use stewardship principles in poultry, which now includes over 40% of global poultry meat production.

The USAID-funded Transform project has united 26 organisations in antimicrobial use stewardship in an effort to combat antimicrobial resistance.

Antimicrobial use in animals or humans could lead to antimicrobial resistance (AMR), which weakens our ability to prevent and treat future infections.

Recognising the responsibility to safeguard the efficacy of these essential medicines, the following organisations announce their endorsement of science-based antimicrobial use stewardship principles that promote the health of poultry to avoid the need to use antimicrobials:

- Association of Poultry Processors and Poultry Trade in the EU.
- Baromfi Termék Tanács (BTT), a Hungarian poultry association.

- Bundesverband der Geflügelschlachtereien e.V (BVG), a German poultry association.
- Fédération des Industries Avicoles (FIA), a French poultry industry federation.
- Krajowa Rada Drobiarstwa – Izba Gospodarcza, the National Poultry Council for Poland.
- Vereniging van de Nederlandse Pluimveeverwerkende Industrie (NEPLUVI), a Dutch poultry association.
- Yum! Brands.

A cornerstone of the United States Agency of International Development's (USAID) Transformational Strategies for Farm Output Risk Mitigation (Transform) project led by Cargill, the antimicrobial use stewardship principles were developed by the International Poultry Council (IPC) to drive global change throughout the animal agriculture industry by guiding actions to avoid the need to use, but when needed, ensure proper use of antimicrobials.

[cargill.com](http://cargill.com)

## Ground broken on broiler farm in Abu Dhabi



The 68-hectare (680,000 sqm) facility will be built under a Musataha agreement across an overall area of 720 hectares (7.2 sqkm).

The broiler farm is part of a Musataha agreement signed with KEZAD for a 50-year land lease for 3 food processing projects involving investments of over AED1 billion

Once operational in 2025, the state-of-the-art facility will serve the UAE's growing demand for high-quality and fresh poultry products Abu Dhabi, United Arab Emirates: Al Ghurair Foods, a leading food processing company based in the UAE, today held the



groundbreaking ceremony for its first broiler farm in Abu Dhabi's Khalifa Economic Zones Abu Dhabi (KEZAD), expanding the company's poultry and livestock production capabilities under Al Ghurair Foods Poultry.

[al-ghurair.com](http://al-ghurair.com)

## New affiate in India



Nuqo is pleased to announce the opening of its new affiliate in India, marking a significant milestone for the company.

In the last few years, Nuqo's technologies have experienced rapid expansion globally and gained recognition in the market.

Headquartered in Europe, NUuqo is a feed additives company and a pioneer in developing technologies based on the micro-encapsulation of metabolites from plants and seaweed (phytogenics and phycogenics).

[nuqo.eu](http://nuqo.eu)

## Optimise airflow within facilities like never before



In a world where the quality of indoor air is becoming

increasingly important, TPI-Polytechniek is proud to introduce Vuela, an innovative ventilation inlet, designed to optimise airflow within facilities like never before.

With its unique V-shaped valve, Vuela sets new standards for efficiency, durability and ease of use in ventilation technology.

After 25 years of producing their well known and respected 145-VFG inlet series they have maintained identical dimensions to the original 145 series.

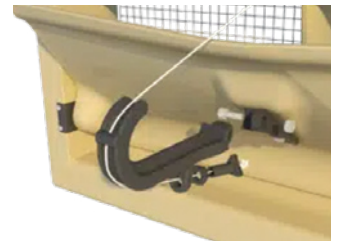
### Unique valve shape

Vuela is equipped with an innovative V-shaped inner valve that guides air optimally under all conditions. This unique shape ensures that air jets penetrate deep into the facility, guaranteeing even and effective distribution of cool air throughout.

Comparing this technology with traditional systems Vuela's performance really stands out. It's a revolutionary advancement in managing indoor climates.

### Perfected ventilation control

From a minimum capacity of 1,560 m<sup>3</sup>/h at 10 Pa at minimum opening to an impressive maximum capacity of 3,140 m<sup>3</sup>/h at 40 Pa at full opening, Vuela perfectly aligns



with your requirements. These capacity ranges highlight not just Vuela's versatility but also its commitment to delivering optimal performance.

### Built to last

Vuela comes equipped with the latest accessories and seals, including a new pulley unit made from durable ABS.

This makes the system resistant to chemical and high-pressure cleaning while also being easy to maintain and assemble – a true revolution in the ease of ventilation maintenance.

### Effortless 145-VFG replacement

Vuela is specifically designed to easily replace the 145-VFG, making the transition to more efficient ventilation effortless.

Without the need for extensive adjustments, Vuela offers a perfect fit and the future of efficient ventilation within reach.

[tpi-polytechniek.com](http://tpi-polytechniek.com)

## Broiler management on the road



The Aviagen UK customer support team recently embarked on its biennial 'Broiler Roadshow,' travelling to Yorkshire on April 23, Shropshire on the 24th, and Norfolk on the 25th.

At each location, they connected with Ross 308 growers and representatives from the wider UK broiler sector, sharing practical advice to maximise the welfare, sustainability, performance and efficiency of their flocks.

Led by UK Broiler Technical Managers Kieron Daniels and Sean Harrison, alongside guest speaker Mike Czarick, Poultry Science Engineer from the University of Georgia in the US, the caravan reached over 200 attendees. Sean

and Kieron also presented Ross 440 Club winners with their awards and to promote the new Ross 450 Club.

[Aviagen.com](http://Aviagen.com)

## Farm boosts egg supply



Local businessmen Alex and Raymond Abelido have created Tierra del Sur Farms, Inc., a commercial poultry farm to help strengthen local egg production and cut down egg imports.

In 2023, the Land Bank of the Philippines (Landbank) extended credit assistance amounting to P160 million to re-finance the construction of facilities in their 17-hectare farm in Romblon.

[landbank.com](http://landbank.com)

# International News

## EVENT DIARY

### 2024

#### EU authorisation and renewal



dsm-firmenich, the leading innovator in nutrition, health and beauty has received a renewal of the European Union authorisation for 25OHD3 from *Saccharomyces cerevisiae* CBS 146008 in pigs and extension for its use in ruminants, based on its Hy-D scientific dossier submitted to the European Food Safety Authority (EFSA).

25OHD3 (Hy-D, the unique form from dsm-firmenich) is the main circulating form of vitamin D3 in humans and animals, and sufficient levels are associated with improvements in animal health and performance.

Hy-D offers significant benefits for both swine and poultry, including improved bone strength, optimised health, increased meat yield, and enhanced overall quality.

Proper usage of Hy-D can positively impact animal well-being and productivity.

[DSM.com](https://www.dsm.com)

#### Optimising poultry performance



Performance and efficiency are objectives both animal and feed producers strive to improve.

Animal producers seek strategies and formulations that give them the power to achieve evolving genetic potential and feed producers continue to find innovative ways to make more high-quality feed and meet increasing demand.

As poultry producers navigate the complexities of modern farming, the role of feed quality emerges as a cornerstone to success.

High-quality pellets produced sustainably and with a focus on energy efficiency, are key to maximising performance and profitability in poultry production.

[anitox.com](https://www.anitox.com)



### Lighting up poultry farming in the philippines



Gone are the days when chickens were raised in traditional coops. Partnered with a local poultry farm, Hi-MO X6 was installed across the rooftops of the farm in the Philippines, pioneering a low-carbon and sustainable agricultural paradigm.

Amid soaring global energy costs, solar power is seen as a game-changer in reducing operational expenses and bolstering the competitiveness of the agricultural industry.

The poultry farm in the Philippines has embraced Hi-MO X6, with an estimated annual generation of 300,000kWh, supplying the farm's energy needs and anticipating a net CO<sub>2</sub> emission reduction of 4439 tonnes over its lifetime - a figure equivalent to the CO<sub>2</sub> absorption of 14,796 trees over 30 years. Equipped with HPBC cell technology, Hi-MO X6 boasts a 2.27% increase in light absorption, significantly enhancing power output.

An empirical test reveals that Hi-MO X6 operates for 5.8 hours per day, surpassing the average 4-

hour generation time of mainstream products. Annually, this amounts to an additional 1182.6 generation hours and yields for users. In poultry farms, organic waste decomposition produces ammonia, a potent corrosive agent, particularly harmful under hot and humid conditions.

Hi-MO X6 stands resilient against this challenge, being the first to offer full rear-side soldering that considerably improves anti-crack capabilities and exhibits exceptional performance in severe weather resilience tests.

These panels also passed the TUV SUD ammonia corrosion test, ensuring stable and efficient power and securing daily operations at the poultry farm.

Combining solar power with poultry is a leap in technological innovation and industry integration. Under the mission "To make the best of solar energy to build a green world," Longi is at the forefront of bringing photovoltaic technology to cultivate an agriculture sector that thrives in harmony with nature.

[longi.com](https://www.longi.com)

#### New website for 75th anniversary



LUBING, the globally recognized specialist for Drinking, Conveyor and Climate-Systems, celebrates its 75th anniversary and presents a renewed website.

Since its foundation by Ludwig Bening in May 1949, Lubing has developed into a global market leader with over 200 employees in Germany and a presence in 87 countries.

[lubing.com](https://www.lubing.com)

The new website reflects Lubing's ongoing commitment to innovation, quality and customer service, with a modern look, improved readability on mobile devices and a comprehensive, well-structured information base on the product portfolio.

Lubing started as a three-man operation is now a global company proud of its roots in Barnstorf and remains committed to the agricultural industry worldwide.

#### Indo Livestock

17th July  
Jakarta, Indonesia  
[www.indolivestock.com](https://www.indolivestock.com)

#### SIAVS International Poultry & Pork Show

6-8th August  
São Paulo, Brazil  
[sivas.com.br](https://www.sivas.com.br)

#### Ildex Philippines

28-30th August  
Manila, Philippines  
[www.ildex-philippines.com](https://www.ildex-philippines.com)

#### AgriBITS 2024

5-6th September  
Utrecht, Netherlands  
[www.agribits.nl](https://www.agribits.nl)

#### VIV Select China 2024

5-7th September  
Nanjing, China  
[www.vivchina.nl](https://www.vivchina.nl)

#### SPACE

17-19th September  
Rennes, France  
[www.space.fr](https://www.space.fr)

#### VIV Africa

2-3rd October  
Kigali, Rwanda  
[www.poultryafricaevent.com](https://www.poultryafricaevent.com)

#### Eurotier

12-15th November  
Hanover, Germany  
[www.eurotier.com](https://www.eurotier.com)

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