Fly-Line Innovations

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Hy-Line International and APD: Driving Growth in Africa's Egg Industry

Africa is set to become a global leader in egg production over the next two decades, driven by population growth, urbanization, and rising awareness of the egg's nutritional benefits. With its population projected to surpass 2 billion by 2040, egg consumption is expected to increase from the current average of only one egg per week, which is well below the global average of four eggs per week. Achieving even just 2 eggs weekly per capita by 2040 requires robust growth in the layer population, demanding up to 7% annual growth to meet future needs.



To address this opportunity, Hy-Line International partnered with Hybrid Poultry Ltd, part of the Africa Poultry Development Group (APD) in 2019 to establish a strong genetics distribution network centered on the Hy-Line Brown.

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Investing in the Future: A Message from the President

Dear Friends and Colleagues of the World Egg Supply Chain,

Happy New Year. As we step into 2025, Hy-Line's team is eager to continue working alongside you to navigate the challenges and seize the opportunities that lie ahead in our ever-evolving egg industry.

The past year, 2024, brought its share of hurdles, from the ongoing impacts of global avian influenza to shifting regulations and consumer preferences that are transforming egg production systems. In addition to this, the inflationary pressures are affecting global markets, and it's clear that resilience is key. Yet, the determination and adaptability of egg producers, layer chick suppliers, and the entire supply chain have been remarkable. Together, with the exceptional talent across our industry, I am confident we will overcome these challenges and further our mission to provide affordable, nutritious egg protein to the world.

At Hy-Line, we remain steadfast in our commitment to supporting the global egg supply chain. Our efforts are focused on enhancing layer productivity and efficiency while prioritizing sustainability. In this newsletter, we're excited to share some highlights from the past year and provide updates on our plans for the year ahead:

Cage-Free Advancements: The Hy-Line Brown has achieved significant milestones in Europe's cage-free sector, and we're seeing tremendous progress in Sub-Saharan and East Africa as well as Asia and Latin America in the conventional production sector. Recognizing the rapid growth of cage-free production worldwide, now accounting for over 20% of the global output, we've invested in a new cage-free specialist role within our technical team to provide focused support to this segment.

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Hy-Line President Jonathan Cade

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Global Training Initiatives: Our commitment to education continued in 2024, with impactful technical events taking place in Africa, India, Latin America, Southeast Asia, and beyond. These efforts ensure egg producers everywhere are equipped with the knowledge to unlock the full genetic potential of our lines.

Research and Innovation: Hy-Line scientists continue to collaborate with global poultry scientists to contribute to advance academic efforts to better understand the genes involved in the laying hen's immune response to the highly pathogenic avian influenza virus, which has devastating negative impacts on the worldwide egg supply.

Expanded Support Teams: We are thrilled to welcome new technical staff members in Africa, Asia, and Latin America. These members bring specialized expertise to better serve our global partners.

Success Stories in White-Egg Genetics: Our W-80 line continues to meet the specific needs of growing industries, supporting farmers with reliable, high-performing genetics.

Lastly, I would like to highlight partnership with Blessman International in South Africa. This collaboration ensures children under their care receive an egg daily, underscoring the critical role of eggs in combating global hunger and improving nutrition for the next generation.

As we look to 2025, we are proud to stand with you—our valued partners as we face challenges and capitalize on opportunities together. With your dedication and collaboration, we can make this year one of growth, innovation, and success for the egg industry worldwide.

Here is to a prosperous year ahead!

I an tha Cade

Africa Market continued from p. 1

Operating in Zambia, Kenya, Uganda, and Tanzania, APD provides farmers with day-old superior chicks. backed by Hy-Line's robust and adaptable layer genetics tailored to the unique challenges of Sub-Saharan Africa.

"APD's local expertise and APD's biosecure breeder farms in asset as we customize our each year. global vision to meet the needs of local egg farmers. The Sub-Saharan African egg markets offer unique challenges. Hy-Line focuses our efforts on providing robust, balanced, and adaptable genetics to overcome challenges in the field," indicated Jonathan Cade, Hy-Line President.

Richard Keely, Director of APD Group, commented, "The Hy-Line Brown has seen tremendous acceptance in the market. Farmers value Hy-Line's dark brown, strong shells, high number of saleable eggs, excellent feed utilization, and ability to adapt to field conditions. We expect day-old chick volumes to surpass 30 million day-old chicks annually to our markets within the next 2 to 3 years, far outpacing our initial strategic growth goals."



existing distribution network Zambia, Kenya and Tanzania provide have been a tremendous millions of day-old chicks to the region

The partnership has exceeded expectations, with day-old chick volumes increasing and regional growth in demand for Hy-Line parent stock to the wider region as well. To support this growth, Hy-Line and APD invest in technical training, such as their 2024 Lusaka seminar for farmers from 29 countries, focusing on poultry management, bird health, and nutrition.

This collaboration combines cutting-edge genetics, sustainability initiatives, and farmer education, empowering local producers to maximize profitability. As Africa's egg industry grows, Hy-Line and APD remain committed to driving innovation and building a thriving, sustainable future for poultry farming in the region.



Hy-Line and APD held a joint seminar in Lusaka for poultry producers representing 29 different countries.



Maximizing the Genetic Potential of Hy-Line Brown Layers

The Hy-Line Brown meets producer demands for more eggs of higher value, with industry-leading feed efficiency.

The Hy-Line Brown is the world's most balanced and efficient brown egg layer, excelling in productivity, shell strength, and profitability.

To fully realize its genetic potential, attention to nutrition and management is essential.

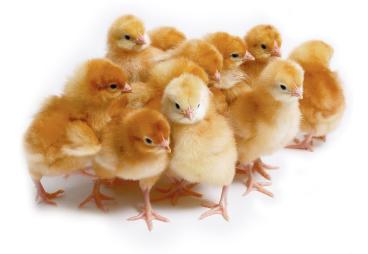
Nutritional Recommendations:

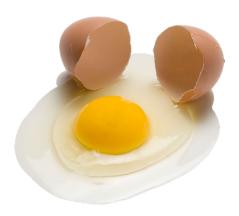
- First 5 Weeks: Provide high-quality feed in crumble form to ensure strong early development, targeting 400–800 g of crumble feed consumption by week 5.
- 5 Weeks: Achieve standard body weight, critical for on time onset of production, long persistence of lay and livability. The five-week body weight is directly related to overall flock profitability.
- **6–11 Weeks:** Ensure steady weekly weight gains (100–110 g) to support skeletal growth necessary for shell quality in production. Transition feed from crumble to mash presentation smoothly, with 75% particle size between 1–3 mm while maintaining fines (<1 mm) at no more than 15%.
- 12–16 Weeks: Attain 85% body weight uniformity or higher, crucial for on-time initiation of lay and higher production peaks. Overweight birds are susceptible to delayed onset of production, increased mortality, and reduced rates of persistency of lay. At 16 weeks with bird transfer, introduce a pre-lay diet making sure to avoid any decrease in energy levels from the prior ration and implement the first light stimulation. If an increase in feed consumption is necessary, consider a midnight feeding program.

Management Recommendations:

- Change diets based on body weight milestones, not just age, but avoid delays over 10 days.
- Be careful to manage body weights between 12 and 18 weeks of age in accordance with published standards. To control egg weight to remain at or below 62 grams, use the minimum to average range of body weight. For larger egg weights, seek body weights in the upper half of the range.
- Maintain optimal body weight (1.35–1.42 kg at 16 weeks) tailored to market egg size demands. Avoid overweight birds to reduce mortality and production setbacks.
- Design lighting programs to match desired egg weights: faster step-down lighting for smaller egg weights and light stimulation at 1.35 kg. Use a slower step-down and stimulation closer to 1.42 kg for larger egg weights. Use cold light during grow and warm light during production, keeping light intensity below 15 lux in grow and below 25 lux during lay.

The Hy-Line Brown's adaptability, efficiency, and robust performance make it a top choice for egg producers worldwide. For more detailed guidance, contact your local Hy-Line representative.





Hy-Line and Blessman's "Two Eggs Per Day" Shows

Positive Results

Hy-Line, the Blessman International Team, and the children in the Two Eggs per Day project in South Africa recently celebrated World Egg Day. For more than 18 months, the children from the rural village have benefitted from two eggs alongside their Meals from the Heartland servings. "There has been a profound change in the students' health and growth along with their capacity

to focus and learn," according to their teacher. The Hy-Line Silver Brown flock produces 1,000 eggs per day, which will increase with the new flock in 2025 by an additional 40%.



"Our goal is to grow this outreach to provide egg protein to more children in our 11 feeding centers around the country," stated Dr. Jim Blessman, Director of Blessman International. "With the positive results we are experiencing with this initial trial, we are convinced of the egg's health benefits."

Tips for Best Results with Hy-Line Layers in Alternative Production Systems Following these

Optimizing performance in cage-free systems starts with correct preparation and management. Here are six practical tips to ensure success with Hy-Line layers:

- Seamless Setup: Match conditions between rearing and laying houses as closely as possible. Pullets must learn to navigate elevated platforms and tiers during rearing. Multi-tier rearing is ideal for multi-tier laying systems.
- 2. Encourage Nest Usage: Provide access to nests immediately after housing. Nests should be draughtfree, comfortable, and free of barriers to entry. Ensure eggs roll away from the nest to prevent birds from sitting on them, avoiding dominance or aggression toward new entrants.
- **3. Optimize Egg Size:** Achieving the desired egg weight profile requires attention to lighting, nutrition, body weight and timing. Your local Hy-Line technical advisor can provide tailored guidance.
- **4. Lighting During Rearing:** Gradually reduce day length during the early rearing period. A slower step-down encourages larger egg sizes, while a rapid step-down leads to smaller eggs.

Following these strategies,
Hy-Line layers can thrive in
alternative systems, delivering
optimal performance and egg quality.

- 5. Light Stimulation Post-Transfer: After transfer of pullets, increase day length by 1 hour to promote feeding and drinking activity. Subsequent increases in light should align with achieving desired body weights. Consult your Hy-Line technical representative for precise recommendations.
- Nutrition and Monitoring: Regularly monitor flock egg weights and adjust feed formulations. Timely nutritional changes are critical to maintaining control over egg size.



New Faces at Hy-Line







Hy-Line International Identifies Genes Linked to Avian Influenza Survival

Hy-Line scientists. in collaboration with global researchers, have identified genetic regions in chickens potentially linked to survival against Highly Pathogenic Avian Influenza (HPAI). Published International the Journal of Molecular alyzed DNA from chickens that survived a severe HPAI outbreak in



Sciences, the study an- Hy-Line Senior Molecular Geneticist alyzed DNA from chick- (retired) Dr. Janet Fulton co-authored ens that survived a se- the publication.

2015, comparing their genetic makeup to non-infected birds.

The research team, including Hy-Line International, the Roslin Institute, Iowa State University and others, used whole-genome sequencing to identify multiple genetic regions associated with resistance to the disease, underscoring the complexity of genetic resistance to HPAI. These findings provide insights into disease mechanisms and potential pathways for breeding AI-resistant chickens; however, extensive additional research will be necessary in coming years for the industry to potentially apply this within a breeding program.

"This study offers valuable information for commercial poultry, moving beyond lab strains to understand resistance in production birds," said Dr. Janet Fulton, Senior Molecular Geneticist (retired) for Hy-Line.

The research, funded by the BBSRC, lowa Egg Council, and Hy-Line, lays the groundwork for potential future disease-resistant poultry breeding, advancing global efforts to combat avian influenza.



Czech Test Winner Proves its Worth on UK Farms

Having excelled in the 2022 Czech independent layer performance test, the Hy-Line Brown Max is living up to expectations now that it is established on farms across the UK. When it came to nesting behavior, the Max was the clear winner in the test, and this quality was the main driver for its introduction to the UK market, where the bird is known as the Hy-Line Brown Plus "Next Generation."

With more than 80% of the UK's 40 million layers now housed in cage-free systems, it's no surprise that a strong nesting instinct is well near the top of the traits producers seek when considering breed choice.

While the standard Hy-Line Brown is well established in the UK, where it is particularly favored for its docility, on occasion, this docility can mean

its instinct to seek out a nest is not as strong as it could be under difficult conditions, as explained by Hy-Line UK's Technical Consultant John Widdowson: "The Hy-Line Brown has a strong following amongst cage-free producers because of its docility, which means it's ideally suited to free range and barn housing systems. This docility contributes

to its strong feather cover and livability, both desirable traits.

However, as the cage-free sector has arown. flock sizes have increased, and housing systems have developed to provide the optimum environment for the birds. Those birds must be mobile enough to navigate these systems and seek out the nests. The clever bit for the Hy-Line genetics team was to improve this trait whilst retaining all that we've grown to love about previous generations of Hy-Line, and I believe they have been successful in achieving this."



With more than 1 million "Next Gen" now on UK farms, with the oldest flocks being mid-60 weeks, there have been no instances of birds not

> course. non-nest ing period, short-lived." Widdowson. "The

finding and using the nests. "Of there's going to be some eggs during the trainbut they have been minimal and very savs bird is active and mobile, but not to the point where it creates behavioral

added benefits we are experiencing are increased egg weight and darker shells. "The eggs are noticeably browner, and there is the potential for larger eggs. Exploiting that potential is somewhat dictated by market conditions and currently, with a narrowing of the gap between the price for Large and Medium categories, there is less emphasis on producing larger eggs," explains Widdowson. "But producers can still benefit from early egg weight bringing in much-needed income at the start of the production cycle when cash flow is tight."



Hy-Line UK's Technical Consultant John Widdowson is delighted with the "Next Gen" performance.

problems. From a flock management perspective, we have been a little more cautious with light intensity, and with this approach, feather cover is good."



At 53 weeks, feathering is good in this flock of "Next Gen" following attention to light intensity.

Czech Test Winner continued from p. 6



The bird has a very strong nesting instinct.

Producers have seen average egg weights of 63 g by 30 weeks and 64 g by 35 weeks, but Widdowson doesn't like to see egg weight increase beyond this point. "There's a growing trend to take flocks on well beyond 80 weeks now, and the bird is capable of it, but you have to maintain control of of egg weight, or will take its toll on bird health and shell quality towards the end of the laying cycle."

Undoubtedly, the "Next Gen" is taking the UK market by storm, but there is still a place for the traditional Hy-Line Brown in that market, believes Widdowson. "We have customers who have successfully managed the traditional Hy-Line Brown for flock after flock, and they wouldn't have anything else. But with the introduction of the Next Gen, we are well positioned to offer customers a choice of breed, both of which have the well-established traits that Hy-Line's reputation is built upon, depending on their requirements."

On the European continent, egg farmers are seeing similar results. Italy and Spain are utilizing the Brown Max—Italy for the increased nesting ability and late shell strength, and Spain in their desire to have the capability of producing very large egg weight profiles when needed. Hungarian and Romanian producers appreciate the balanced nature of the Hy-Line Brown yielding excellent feed conversion, a calm temperament, and industry-leading livability.

Hy-Line Brown genetics demonstrate its ability to produce under different production systems, climates, management styles and egg size preferences. Hy-Line strives to meet and exceed the varied needs of egg farmers around the globe.



Producers can expect a rich brown egg shell from the "Next Gen".



Soaring Sales Leads to Cage-Free Appointment

In response to the growing demand Hy-Line layers in cage-free production systems worldwide, Hy-Line has appointed Jamie McIntosh as Global Technical Services Manager and Cage-Free Specialist. Jamie brings more than 15 years of experience in the poultry industry, with his focus in hands-on cage-free management. Since earning his degree from Heriot-Watt University, Edinburgh, Scotland in 2006, Jamie has held key roles that have allowed him to develop deep expertise in best practices and technical aspects of cage-free operations. His extensive industry knowledge, combined with his practical experience managing large-scale farms and teams, makes him a valuable asset to Hy-Line International.

In his new role at Hy-Line International, Jamie will play a pivotal part in our Global Technical Services Team, particularly in strengthening our leadership in cage-free management. His responsibilities will include providing technical assistance to our distributors and commercial producers, nurturing established partnerships, and enhancing cage-free operations through expert advice and training. Jamie will also contribute to the development of literature and training programs, ensuring Hy-Line continues to lead in this area with the most up-to-date information and solutions.

Hy-Line Hosts Successful Layer Seminar in Indonesia

In October 2024, Hy-Line welcomed egg farm nearly 400 owners, managers, and allied industry professionals across Southeast Asia to a three-day seminar in Indonesia. This highly anticipated event provided attendees cutting-edge insights on management, nutrition, genetics, disease control, biosecurity, pharmaceutical advancements, and equipment innovations.

The seminar featured engaging presentations by Hy-Line's team of geneticists, technical specialists, and veterinarians alongside leading experts from our allied industry. These sessions offered valuable updates on trends and key issues shaping the egg industry.

Beyond informative presentations, the event fostered robust networking opportunities. Attendees and organizers alike engaged in meaningful discussions, sharing ideas and experiences that aimed to drive improved outcomes across the industry. Evenings provided a relaxed atmosphere to strengthen relationships and build camaraderie among participants.

The event was a resounding success, equipping participants with actionable takeaways to enhance their operations while reinforcing Hy-Line's commitment to supporting the Southeast Asian egg industry.





















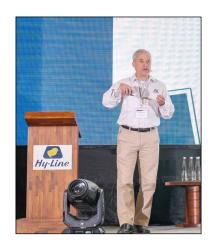


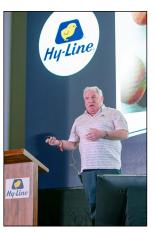


























Hy-Line W-80: Driving Growth in Key White-Egg Markets

India, Mexico, and Brazil rank among the top six global egg-producing nations, predominantly producing white eggs. The Hy-Line W-80 layer has emerged as a top performer in these markets, delivering exceptional results and meeting the specific needs of local producers more effectively than competing genetic lines.

India: Customized Genetics for a Rapidly Modernizing Market

As India's economy continues its ascent among the world's largest, the demand for high-quality protein, including eggs, is surging. The Indian egg industry is modernizing at an unprecedented pace, and the Hy-Line W-80 has become a preferred choice for producers.

Historically, India's market has been dominated by a domestic breed of laying hen with high feed consumption, strong heat tolerance, and small egg weights, aligned with a supply chain that offered little room for international genetic players. Over the past two decades, however, the market has opened, embracing advanced genetics to improve productivity and sustainability.

Hy-Line responded to these unique challenges by investing in a research and development program in India to develop the W-80 to be tailored specifically for India. The result is a W-80 layer designed to excel in the Indian context, offering:

- High numbers of saleable eggs
- Optimized egg weight profiles with fewer hard-to-sell "pullet eggs" compared to local breeds
- Rapid recovery from disease and heat stress
- Exceptional shell quality
- Superior feed efficiency

"Producers appreciate the W-80's ability to deliver exceptional egg quality, persistency of lay, and resilience to field challenges—all while being fed a cost-effective diet. Demand for W-80 chicks continues to grow."

-Edgar Hernandez, General Manager of Hy-Line de México

Mexico: Meeting Demand in a Nation of Egg Enthusiasts

Mexico's 160 million laying hens are predominantly white-egg layers, with the country's egg consumption rates topping 407 eggs per capita annually—the highest globally. In this market, egg quality and feed efficiency are paramount, and the W-80 is outperforming competitor varieties.

The W-80 excels in producing medium-sized eggs (55 to 62 g) demanded by consumers. It rapidly reaches and consistently maintains this range through balanced phase feeding, delivering:

- More eggs per kilogram of feed consumed
- Reduced feed costs compared to other strains
- Strong shell and internal quality, ensuring consumer satisfaction

Brazil: Overcoming Challenges in a Leading Egg Production Region

Brazil is a global leader in poultry production and ranks among the top five egg producers, with white eggs accounting for 75% of production. The W-80 has gained traction in regions like the hot and humid northeast, where heat stress is a significant challenge for egg producers.



"The W-80 maintains feed intake and a strong rate of lay even under high heat and humidity. Its ability to sustain shell quality late into the production cycle allows producers to extend flock life, increasing hen-housed egg numbers and profitability."

-Marcelo Barbosa (left), General Manager of Hy-Line do Brasil

Commitment to Global Excellence

Hy-Line continues to refine the W-80, focusing on persistency of lay, feed efficiency, shell quality, and livability to meet the evolving needs of producers worldwide. With its success in India, Mexico, and Brazil, the Hy-Line W-80 is setting a new standard for high-performance white-egg layers in challenging markets.



"The W-80 delivers more saleable eggs, a better egg weight profile, and stronger shells, all while being the most cost-efficient producer. This makes it the clear choice for Indian egg farmers."

-Suresh Chitturi, Director of Srinivasa, Hy-Line's representative in India

Hy-Line Breeding Stock: Setting the Benchmark for Performance Excellence

In the global egg production industry, maximizing commercial layer performance—measured by egg numbers, egg mass, and feed conversion efficiency—is paramount to achieving optimal profitability for egg producers. However, breeder performance is a critical yet often overlooked aspect of the supply chain. This component remains less visible as hatcheries prioritize producing high-quality, healthy dayold chicks to meet the needs of their egg producing customers. While the genetic alignment of a hatchery is typically based on the performance of the commercial layers, the role of breeding stock performance is pivotal to the success of the overall supply chain.

Operating within razor-thin margins, hatcheries rely on exceptional breeder performance to maintain high fertility rates and maximize hatchery space utilization.

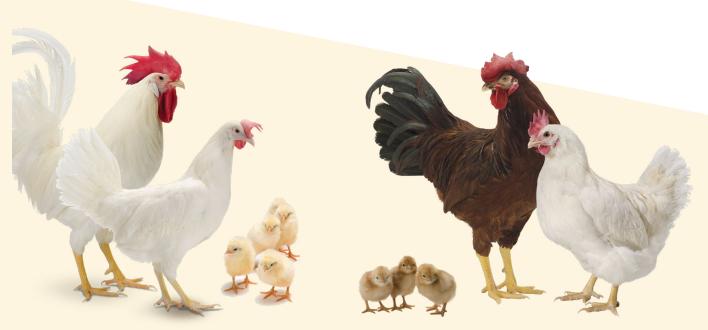
Hy-Line breeding stock not only delivers the most balanced, productive, and efficient commercial egg layers in the industry but also excels in exceptional breeder performance, offering a significant competitive advantage to hatcheries worldwide.

Hy-Line breeders are renowned for their consistently high rates of hatchability throughout the production cycle while producing an extraordinary number of henhoused eggs. This translates into a remarkable yield of saleable dayold chicks, empowering hatcheries to offer reliable and profitable solutions to local egg producers. The increased number of chicks generated per breeder enhances hatchery profitability, enabling reinvestment in advanced technology and heightened biosecurity measures.

Additionally, the extra revenue from surplus chicks helps offset the high costs associated with fertile egg production at the breeder level.

"Breeder performance, particularly in terms of production efficiency and hatchability, has been and will remain a trait of emphasis in our genetic selection process," said Jonathan Cade, Hy-Line President.

Hy-Line's commitment to superior breeding stock ensures hatcheries and egg producers worldwide benefit from unparalleled performance, profitability, and reliability, setting new standards in the poultry genetics industry.



W-80: 140+ chicks/hen

Hy-Line Brown: 130+ chicks/hen





Hy-Line's cage-free summit for Australia egg producers (left), nutritional seminar for experts from Mexico and Guatemala (right), and breeder and hatchery forum in Miami for Latin American distributors (below).

Advancing Excellence in Egg Production

Hy-Line's comprehensive training programs aim to improve profitability and help producers adapt to new technology.

Hy-Line International stands as a global leader in layer genetics, dedicated to research and development (R&D) and committed to the success of our customers. Since its inception, Hy-Line has strived to lead innovation in the science of egg-laying hen genetics in order to enhance productivity, efficiency, and overall sustainability of the industry.

At the heart of Hy-Line's mission is an exceptional focus on R&D. The company's geneticists work tirelessly to improve laying hen performance, developing efficient and prolific birds to ensure the genetic potential of each of our varieties meets the diverse needs of egg farmers worldwide.



Equally integral to Hy-Line's success is its emphasis on customer training. Hy-Line provides comprehensive educational programs to help producers improve their bottom line and adapt to new technologies. These programs cover best practices in nutrition, management, and disease prevention, ensuring farmers have the knowledge and tools to maximize the potential of their flocks.

Hy-Line's Global Technical Team recently led several training sessions for commercial customers. In October, Hy-Line conducted a cage-free egg production summit in Indonesia, hosting directors from Australia's leading egg production companies, to support these producers as they navigate the transition to the new alternative egg production systems. Then, in December, the Hy-Line technical team received the leading Mexico and Guatemala layer nutri-

tion experts to lowa for a threeday in-depth training and discussions regarding the latest feed management and formulation information. Hy-Line also hosted a breeder and hatchery forum in Miami, Florida, USA for Latin American distributors in December. Hy-Line endeavors to remain a trusted partner for egg producers globally built on collaboration, innovation and excellence. With a steadfast commitment to progress, Hy-Line International continues to enhance the future of the egg industry, delivering unmatched value to its customers and the world.

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