



Hy-Line®



Hy-Line Innovations

A Publication of Hy-Line International



Hy-Line Delivers

At Hy-Line, we are committed to build a culture of continuous improvement for our customers.

Through 2015, Hy-Line International will continue its uncompromising dedication within the breeding program to deliver commercial layers that:

- Persist at a higher rate of lay over a longer production cycle year-on-year.
- Meet and exceed the highest external and internal egg quality requirements in the industry.
- Continue to demonstrate the highest level of feed efficiency and most economical feed cost per egg produced.
- Adapt to new housing and production systems throughout the world designed for improved animal well-being.

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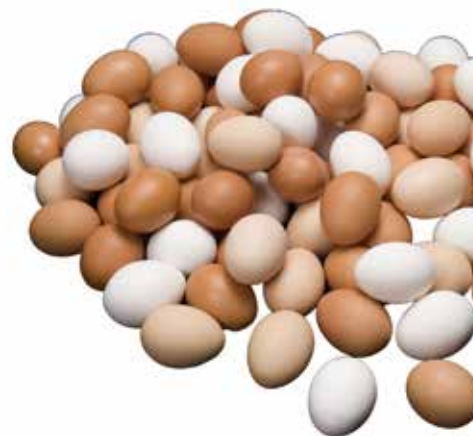
The Science and Art of Improving Egg Quality

In recent years, it seems the only constant in the global egg industry is change. Evolving market demands, innovative production systems, different product preferences, and heightened consumer quality expectations are the new normal. Consequently, egg producers worldwide demand maximum productivity for egg output with superior egg quality from the modern layer over an extended, uninterrupted production cycle.

As a genetics company, Hy-Line International is compelled to identify these future market trends and proactively implement procedures within the breeding program to meet and exceed these constantly changing market requirements and deliver, in a timely manner, the laying hens able to yield the expected performance.

In addition to optimizing egg production and efficiency, evaluating and improving overall egg quality is at the core of our genetic program. While all decisions are based on sound science from internal data or published research, the determinants for deciding what to measure, when to do it and

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how to implement it is both science and art. All available resources must be balanced with the desired changes to satisfy the global demands. The most important recent innovations in regards to egg quality evaluation include:

1. Selecting for improved egg quality and persistency of production through lengthened pure line evaluations.

Hy-Line's recent investments in expanded pure line housing allow for extended evaluations to 90 weeks of age (Figure 1). Along with an increased rate of production in longer cycles, Hy-Line has also extended internal and external egg quality evaluations. Hy-Line eggs achieve better persistency of both internal and external egg quality (Figure 2), with greater salable egg production for a positive impact on profitability for the producer. A side advantage of extended egg quality is that it allows for better selection for controlling egg size, while improving shell color.

2. Extracting the maximum genetic potential for shell integrity and resistance by refining shell quality.

Hy-Line's multiple shell quality measurements (Figure 3) allow selection for layers with strong, resistant shells which persist late in lay. In addition, they assist to improve the hatchability of fertile eggs from breeding stock and to ensure the integrity of the shell properties, which includes its ability to prevent bacterial penetration to preserve the internal quality of the egg. We measure the breaking strength – a destructive procedure that measures the blunt force required to break open the shell. Additionally, we test for shell integrity and functionality using a non-destructive acoustic egg test. The acoustic egg testing device transforms the egg's vibration properties into practical shell quality measurements – allowing the detection of the presence of micro-cracks and resistance of the entire shell, known as dynamic stiffness.

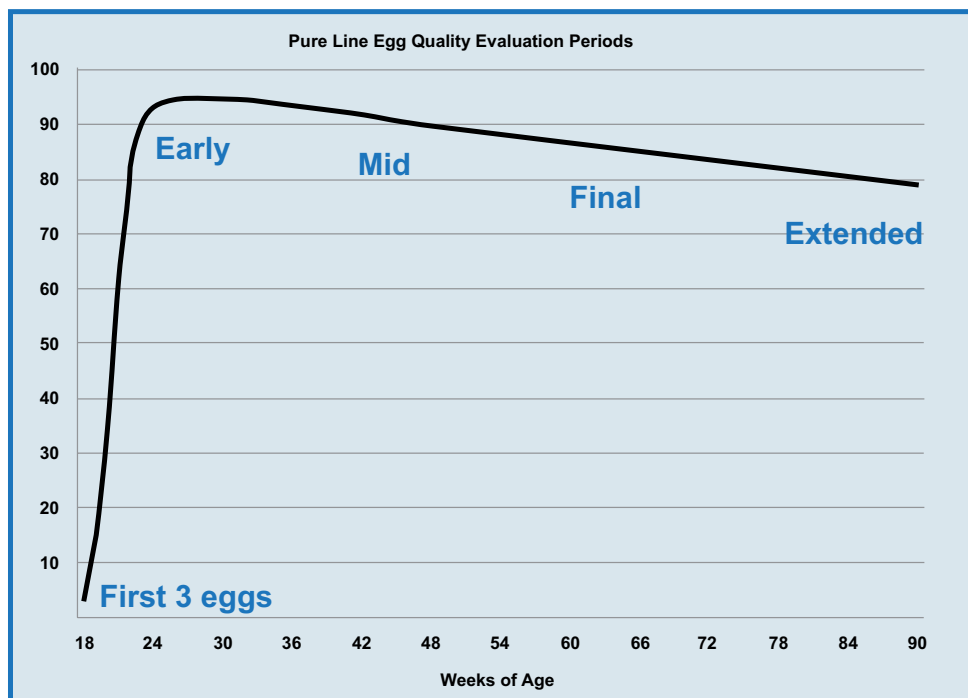


Figure 1. Egg quality evaluations on pure line birds are done on the first three eggs, early, mid and late eggs produced and finally an extended evaluation. This data is traced to the individual pedigree hens and stored within Hy-Line's custom, in-house evaluation software.

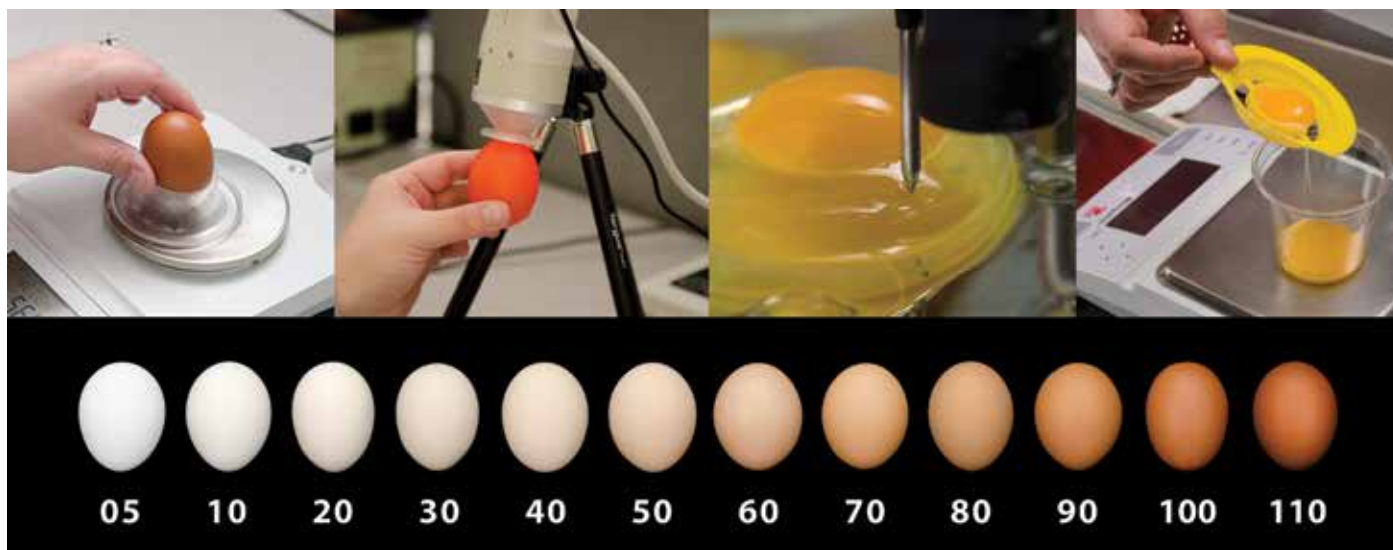


Figure 2. Measurement of individual egg weight, shell color, albumen height, and yolk weight.



Figure 3. Components of the new shell quality evaluation, from left to right: breaking strength at the equator and between the poles, and acoustic egg test.

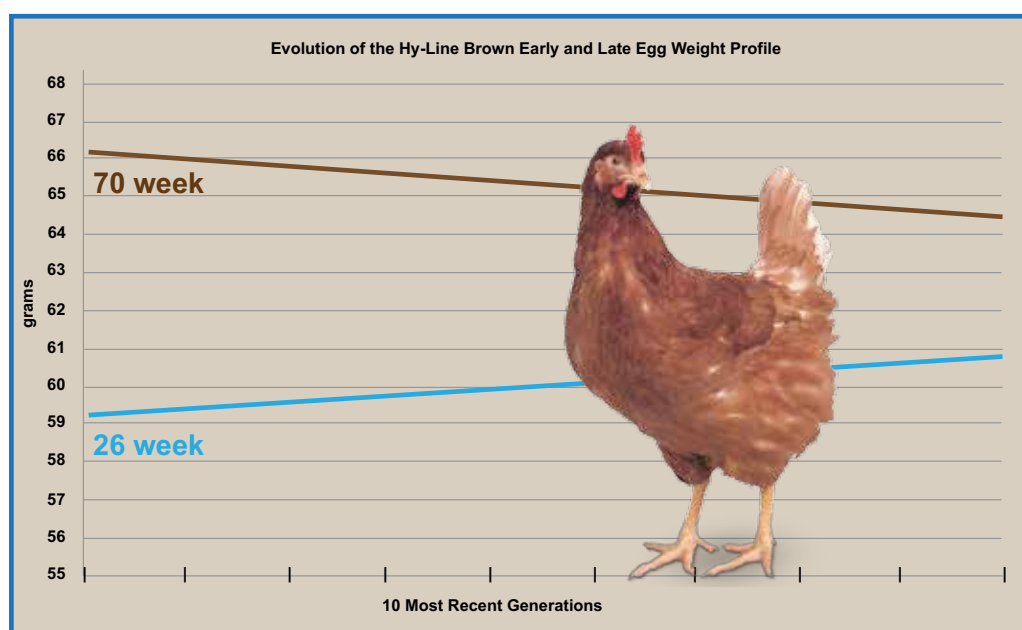
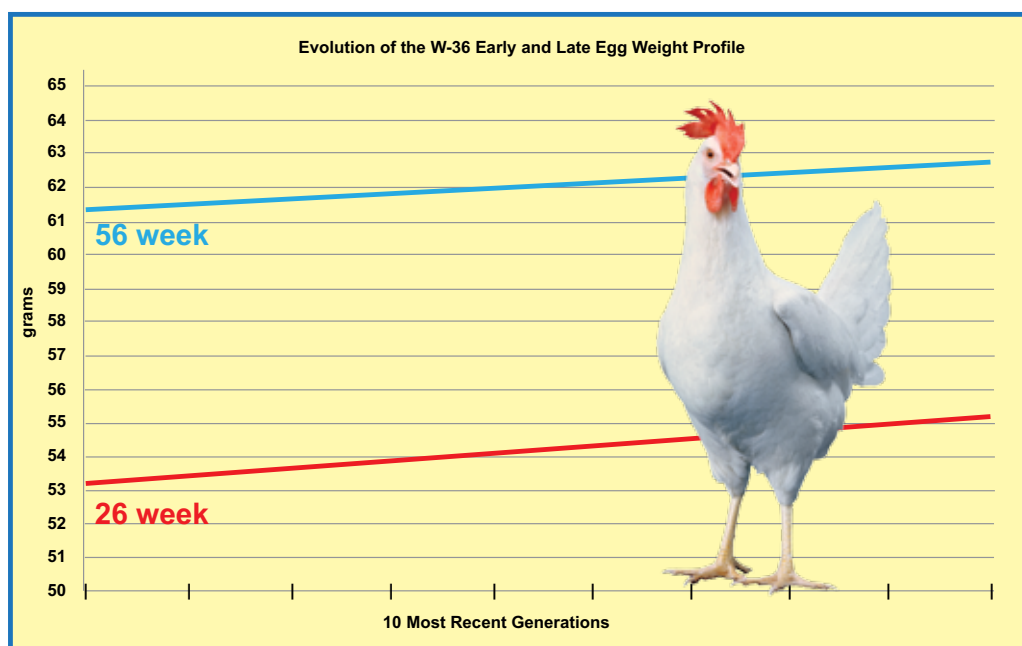


Figure 4. Internal field test data for egg weight trends for W-36 and Hy-Line Brown .

3. Improving solids levels very early in the production cycle (Figure 2). Solids, or dry matter, content is one of the most important attributes in eggs destined for industrial use as processed eggs, value-added products for human consumption, and for the cosmetics and pharmaceutical industries. Eggs from young birds have a lesser yolk-to-egg proportion meaning a lower percent of dry matter. By evaluating the yolk weight measurement in the first three eggs that each hen lays, Hy-Line researchers add selection pressure for improved solids in the first part of the production cycle increasing the economic value of the first eggs a flock produces. For young breeder flocks, a larger proportion of yolk in small eggs will positively affect hatchability. Hy-Line continues to pursue improved egg solids in our varieties to widen our layers' market leading position in this characteristic, especially the Hy-Line W-36 white egg variety. Her superior and ever-improving dry matter content is valued by egg processors throughout the world.

Egg Quality continued on pg. 4

Egg Quality continued from pg. 3

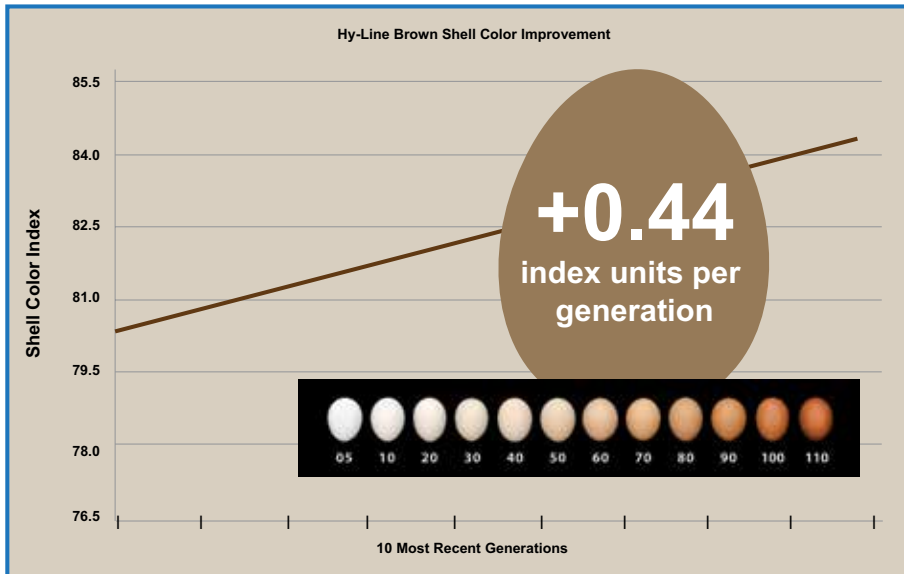


Figure 5. Internal field test data for shell color trend (1 to 100 index) for Hy-Line Brown.

Haugh Unit measurement (a measure of albumen height) continues to show a positive upward trend (Figure 6) from its already market-leading point of advantage. These traits were measured in multiple locations and conditions in multiple countries over 10 generations.

Hy-Line remains committed to our promise of delivering genetic excellence. We will continue to invest in our industry-leading evaluation program to match the genetic makeup of our commercial products with the global market demands.

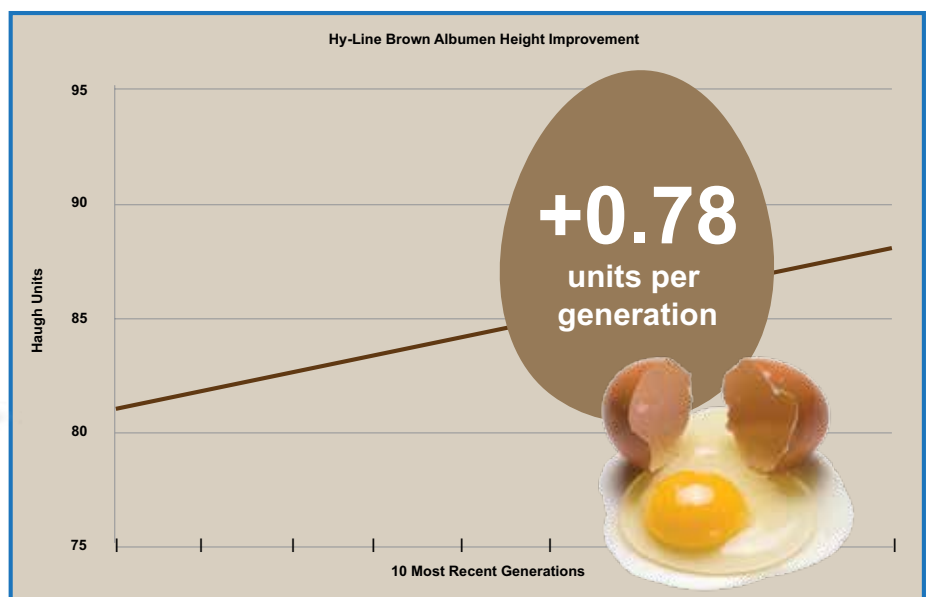
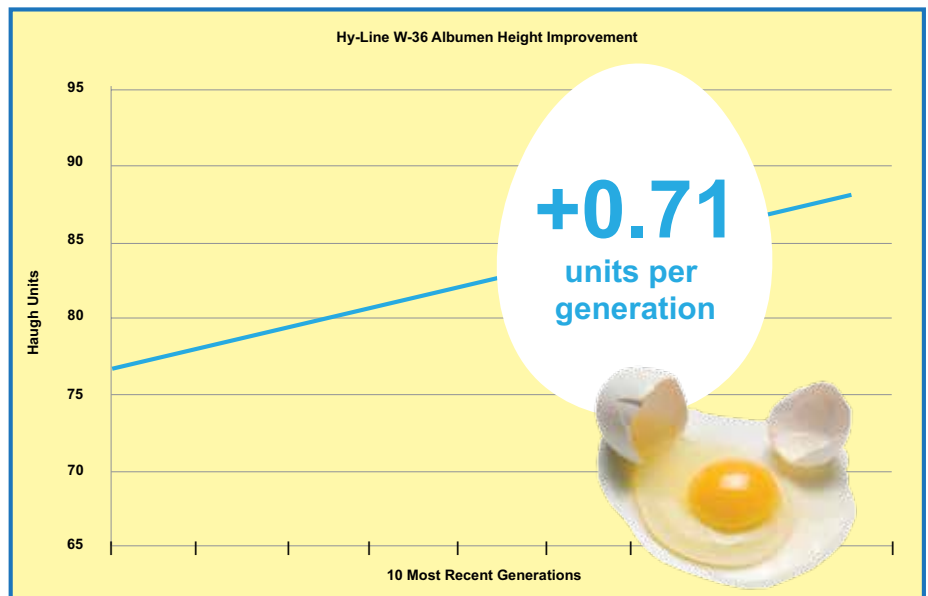
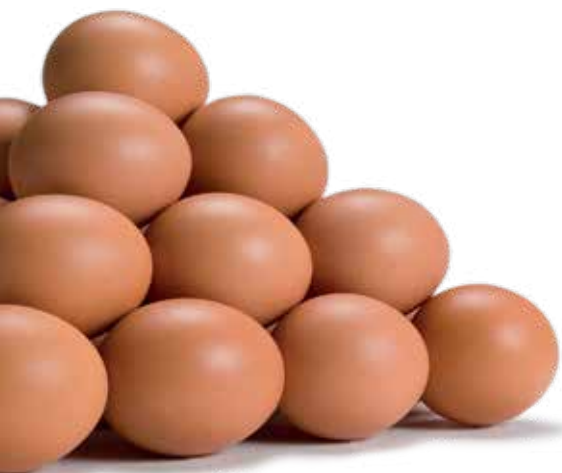


Figure 6. Haugh Units trends for W-36 and Hy-Line Brown. Internal field test data.

Hy-Line delivers... ...feed efficiency



You'll keep your costs to a minimum with our birds

The Hy-Line W-36 is the most feed efficient layer in the world

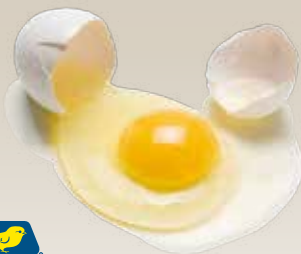
Hy-Line delivers... ...persistency



Looking for ways to produce more eggs over the life of your flock

The W-36 and Hy-Line Brown – prolific layers to 90 weeks and beyond

Hy-Line delivers... ...quality



Your customers require high quality white and brown eggs

Our Hy-Line W-36 and Hy-Line Brown have been optimized by experts to produce maximum Grade A eggs

Hy-Line Delivers continued from pg. 1

In this edition of *Innovations*, we wish to share with you how Hy-Line International continues to work hand-in-hand with our worldwide customer base to deliver continually improved laying hens which efficiently produce the highest quality eggs possible to feed the egg consumers of the world.

Egg production in Asian markets is continuing on a high rate of growth, as these markets recognize the egg's affordable nutrient value.

Egg production in Asian markets is continuing on a high rate of growth, as these markets recognize the egg's affordable nutrient value. Therefore, we will maintain our focus on delivering our robust, yet efficient, brown egg layer and market leading white egg varieties. We are increasingly visible in the local markets, strongly supporting the IEC Asia Leadership Forum in Bangkok — a first for Asia — commencing prior to the VIV Asia 2015 exhibition, and look forward to hosting our growing contingent of customers in the region at our booth at the VIV Asia exhibition. It all adds up to Hy-Line's commitment to be the preferred supplier of layer chicks in the region.

I thank you all again for your continued support and trust you give us here at Hy-Line International.

Jonathan Cade



Jonathan Cade, President, Hy-Line International

Hy-Line Exhibits at 2015 IPPE

In January, Hy-Line had the pleasure of welcoming thousands of industry leaders to our booth at the record-breaking International Production and Processing Expo (IPPE) in Atlanta, Georgia, USA.

IPPE officials reported that 30,300 poultry, meat and feed industry leaders participated from all over the world. For three days, participants attended educational programs and visited 1,284 exhibitors in the Georgia World Congress Center. The Expo is the World's largest annual poultry, meat and feed industry event of its kind.

IPPE had a record-setting 7,245 international visitors from 103 countries. Latin America/Caribbean represented the largest region with 2,811 attendees.





Hy-Line Around the Globe

Peru: New Hy-Line Manual Launch

Hy-Line, together with Produss/San Fernando, the longtime distributor to Peru, held a series of conferences attended by a total of 270 customers to launch the new Hy-Line Brown manual. The Hy-Line team discussed the new recommendations, standards and format with the local customers. Peru has 24 million egg laying hens, with Produss supplying more than one-third of the market.



Hy-Line International and San Fernando team prepare for the Lima meeting.



Participants discussing new Hy-Line Brown manual standards in Trujillo, Peru.



Participants in Chincha, Peru hearing about the latest in vaccinations for quality Hy-Line birds.

Vietnam: Growing Market Share

Mr. Ron Gooi, Regional Business Manager to Southeast Asia, assisted Ba Huan company to celebrate the World Egg Day in Saigon at the Vietstock show in October 2014 with a joint booth. Hy-Line and Ba Huan, the local representative based in Saigon, continue to grow the Hy-Line Brown in the market promoting her livability and internal egg quality characteristics. Ba Huan is a locally-owned Vietnamese company that is the largest egg wholesaler and marketer in the south. The recent partnership with Hy-Line to provide the Hy-Line Brown to the market has been an early success.



Ba Huan representatives exhibiting at Vietstock.

Tanzania: First Hy-Line Brown Breeding Stock Flock

Hy-Line International has signed an agreement to provide Hy-Line Brown parent stock to Silverland Farms in Tanzania, Africa — the first time Hy-Line breeding stock have been sent directly to this country in recent history. The Hy-Line Brown — a highly prolific, rich brown egg layer — helps provide an economical source of nutrition for the Tanzanian people. Tanzania has an estimated 60,000 brown breeding stock in the country.



Silverland Farms' first flock of Hy-Line Brown breeding stock at 21 weeks.



Two Silverland Farms employees holding Hy-Line Brown breeding stock.



A view of Silverland Farms in Tanzania.

Turkey: Hy-Line Presents Technical Seminar

Nearly 25 industry leaders representing Hy-Line chick distribution companies attended the Hy-Line Technical Seminar in Istanbul, Turkey in December. These farms lead the way with Hy-Line genetics in Ukraine, Finland, Azerbaijan, Uzbekistan, Greece, Hungary, Russia, Turkey, Libya, Egypt, Saudi Arabia, Jordan, Lebanon, Iraq and Pakistan.

Those in attendance discussed the latest in poultry management, including nutritional management, pullet rearing, lighting and biosecurity. The meeting offered a valuable networking session for the leading hatchery executives to exchange experiences. To cap it off, the group took a riverboat cruise of the Bosphorus Straits.



Pictured, left to right: Mark and Sleiman Kehdi (Agripoult - Lebanon), Miguel Paula (Hy-Line International), Dr. Hassan Sarosh (Quality Breeders - Pakistan) and Mr. Masood Ahmed Khan (Rose Chicks - Pakistan)



Pictured, left to right: Valeriy Stepanenko (Hy-Line International) and Mahir Mirzayev (MMZ - Azerbaijan)



Pictured, left to right: Hossam El Den Ahmed (Mipco - Egypt), Dr. Abdelrahman Ahmed (Mipco - Egypt) and Yasmin El Alaily (Mipco - Egypt)

Pakistan: Hy-Line Marks 25th Anniversary

This January, Hy-Line International celebrated its 25th anniversary leading the way with superior layer genetics in Pakistan with Rose Chicks.

More than 120 poultry farmers attended a technical seminar in Karachi, Pakistan sponsored by Hy-Line and Rose Chicks. Dr. Hassan Sarosh, technical director for Quality Breeders in Pakistan, and Amine El Ghissassi, Hy-Line's regional business manager in North and West Africa and the Middle East, presented information about Hy-Line and how to raise quality birds.

Pakistan is a white egg market, with 130,000 Hy-Line W-36 breeding stock in 2014. The total commercial layer population is approximately 50 million layers.



Pictured, left to right: Dr. Hassan Sarosh (Quality Breeders - Pakistan), Mr. Masood Ahmed Khan (Rose Chicks) and Amine EL Ghissassi.



Pakistani poultry farmers gain insight into raising quality Hy-Line birds.



New Hires and Promotions Bolster Hy-Line's Ability to Serve Customers



Kurt Rossi has joined Hy-Line International as international sales director. He will be responsible for all sales and marketing the Hy-Line brand in India, CIS region, Eastern Europe, Africa and the Middle East. Kurt will be based in Malta.

"Kurt is the third generation in his family involved in poultry production. His experience and knowledge of the international commercial egg industry will be a very significant attribute to enhancing customer support and assist Hy-Line to increase participation in under-served markets," said Jonathan Cade, president of Hy-Line International. "Kurt will lead an already dedicated team of business managers across his territory and strengthen Hy-Line's position in key markets."

Before joining Hy-Line, Kurt worked for Salmat International GmbH for 16 years initially as regional sales director for Latin America from 1998 to 2004, then regional sales director for the CIS countries from 2004 to 2012, and most recently as global commercial director from 2012 to 2014.



Dr. Daniel Valbuena has been promoted to Latin America regional manager. In this new role, he will assume the region's commercial duties in addition to addressing the technical needs of Hy-Line International's Latin America customer base. Prior to his promotion, Dr. Valbuena had been exclusively Hy-Line's technical services manager in Latin America.

"Dr. Valbuena has traveled extensively throughout the Latin American region the past two years, serving both parent and commercial customers with white and brown genetics," said Tom Dixon, international sales and marketing director for Hy-Line International. "His experience in the poultry industry and dedication to Hy-Line's customers are a great fit for this regional manager role."

Before joining Hy-Line in March 2013, Dr. Valbuena worked for Avicol S.A., the Hy-Line distributor in Colombia and Ecuador.



Brittney Roorda has joined as international marketing manager for Hy-Line International. Her duties include planning, developing and implementing marketing activities, marketing communications and public relations. She will be based in the Hy-Line International corporate office in West Des Moines, IA.

"Brittney's wealth of experience will help Hy-Line further develop how we communicate the value Hy-Line brings to the international egg industry," said Tom Dixon, international sales and marketing director for Hy-Line International.

Most recently, Brittney was the communications director for Des Moines First. Prior to that, she was an account manager with brand communications agency The Meyocks Group for state, regional and national agricultural clients. Brittney holds a Bachelor of Science degree in Public Service and Administration in Agriculture from Iowa State University.





Louise Butler has received added responsibilities in marketing for Hy-Line International. She will continue her role as the sales manager for Hy-Line UK, Ltd.

"Louise offers specialist skills and a wealth of knowledge in marketing for enhancing Hy-Line's global but local image" said Jonathan Cade, president of Hy-Line International.



Dr. B. Ramakrishna has been appointed Hy-Line India's sales manager. He will be responsible for sales and coordinating customer technical service in India and its neighbouring countries.

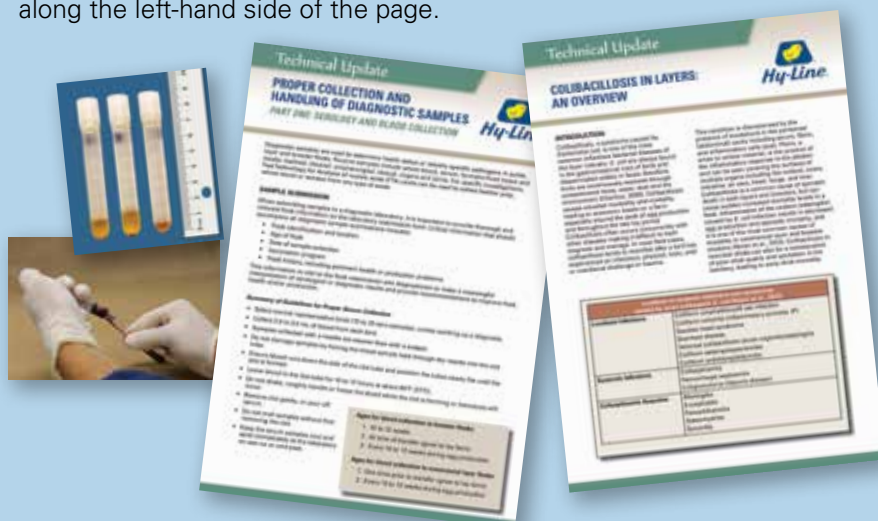
"Dr. Ramakrishna's technical service experience and dedication will give Hy-Line's customers continued success," said Kurt Rossi, international sales director for Hy-Line International.

Most recently, Dr. Ramakrishna was a technical service manager for Aviagen India, Hy-Line International's sister company. He started his career in technical service to poultry farmers before joining a Hy-Line joint venture company in 1998, where he worked with Hy-Line distributors and gained experience managing and selling Hy-Line's W-36 layer variety in southern India.

Dr. Ramakrishna holds a Bachelor of Veterinary Science degree from the Veterinary College and Research Institute, Namakkal.

New Technical Updates Available

Hy-Line's Technical Services Department has recently published two new resources to help customers stay current on best practices and technical recommendations. Download the two technical updates — *Proper Handling of Diagnostic Samples, Part One* and *Colibacillosis in Layers: An Overview* — at www.hyline.com by clicking on the Technical Library button along the left-hand side of the page.



Former Hy-Line UK Sales Director Receives Honor

When the British free range industry announced this year's Free Range Awards, former Hy-Line UK sales director, Terry Ellener, made the list.

Terry's devotion to poultry from a young age and achievements in his career set him on the path to receive the lifetime achievement award.



Known as "Mr. Hy-Line", Terry prided himself on taking a one-on-one approach to customer service. When free-range poultry farming developed in the 1980s, he very quickly became the source for everything free-range.

He helped Hy-Line become a leading company by relaying field data to Hy-Line's geneticists. His influence continues to help guide how laying flocks are managed today.

When Hy-Line UK became a subsidiary of Hy-Line International in 1995, he was named the sales director. He went on to be named technical director and finally worked as a consultant, taking him to 13 European countries to serve Hy-Line UK customers' technical needs. Terry retired in 2014.

Hy-Line UK, Ltd. Celebrates 20 Years

Following the growth of Hy-Line chicks sales in the UK and Ireland in the late 1990s, Hy-Line UK spearheaded a major industry milestone in 2000 — the opening of the most modern purpose-built twin hatchery in Europe. Building the Millennium Hatchery reinforced Hy-Line UK's position as the leader in production and distribution on day-old chick in the global market.

The hatchery's immediate success allowed further expansion several months after opening. Then in 2004, it gained more ground, growing from 12 to 92 acres.

Today, Hy-Line UK continues to invest in the latest technology to ensure its customers benefit from higher yields, lower costs and a more secure and successful future. More setters and hatching, plus a new heat recovery and energy management system, have enabled Hy-Line UK to continue to offer flexible production of commercial layers and parent stock to fully meet all customers' needs, regardless of the scale or requirements.



Aerial view of the Millennium Hatchery



The state-of-the-art Millennium Hatchery



A setting corridor at the Millennium Hatchery

New Dietary Guidelines Favor U.S. Eggs

After 40 years of telling US consumers to limit their cholesterol intake, the US government's Dietary Guidelines Advisory Committee is preparing to withdraw their warnings about its impact on a healthy adult's diet.

The Committee, which forms the nutritional guidelines for The Department of Health and Human Services and the Department of Agriculture, has found cholesterol in the diet is no longer a "nutrient of concern".

While cholesterol in the blood still puts consumers at risk for heart disease, the greater concern is now for high levels of "bad" cholesterol — those foods with trans fats and saturated fats. The Committee's findings offer relief for egg producers. It seems that some cholesterol, like that in eggs, does not stay in the bloodstream.

In 1961, the American Heart Association, and later the US government, adopted warnings that shifted eating habits and harmed egg producers — per capita egg consumption dropped approximately 30 percent.

The full report, due in December 2015, could encourage consumers to make eggs a bigger part of their diets.



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Hy-Line International
1755 West Lakes Parkway
West Des Moines, Iowa
50266
U.S.A.
Phone: +1 515-225-6030
Fax: +1 515-225-6425



Email: info@hyline.com
www.hyline.com