

Hy-Line International A Publication of Hy-Line International

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Hy-Line International Identifies Genetic Control of HPAI Resistance

Livability is a critical trait for today's egg producers. Profitability depends upon the long-term survival of laying hens in the face of multiple environmental challenges.

Following devastating Highly the Pathogenic Avian Influenza outbreak in the USA egg industry in 2015, Hy-Line International conducted cooperative research with Iowa State



University in the USA, University of Edinburgh in Scotland, and Warsaw University of Life Sciences in Poland, with funding from the Egg Industry Center.

This research discovered the potential to identify hens with the genetic predisposition to survive HPAI. Researchers found multiple genetic components that influence the survival of hens following an HPAI infection¹. Additionally, it uncovered possible specific immune-related genes². Genetic tests could correctly differentiate between survivors and controls in up to 80% of samples. The

ability to identify birds that are more likely to survive without a need to expose them to disease challenge is one advantage of genomic testing.

Blood samples for DNA testing were obtained from the rare HPAI survivors in commercial production houses. DNA variation from these exceptional birds was compared with DNA from age and genetics matched controls from non-affected flocks. Genetic variation at 600,000 locations within the chicken DNA was examined and differences between survivors and controls were found3.

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Hy-Line Enhances Genetic Progress with New Research Farm

An Update from the President

In July, Hy-Line celebrated the completion of its newest research farm surrounded by federal, state and local dignitaries at a ribbon cutting ceremony. Named for the visionary and company founder, Dr. Henry A. Wallace, this stateof-the-art investment located in central lowa, USA, completes another significant step in the drive for accelerated genetic progress in Hy-Line layers sent to more than 120 countries around the world.



The Dr. Henry A. Wallace Farm was completed in July.

We have a substantial responsibility in the effort to feed a growing global population with an inexpensive and nutritious source of protein - the egg.

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New Research Farm continued from p. 1

The addition of the Wallace Farm allows us continued innovation and genetic progress in Hy-Line layer genetics to accomplish this.

We continue to make significant strategic changes in the Hy-Line breeding program that are accelerating the rate of genetic progress. Egg production and eggshell quality show higher genetic variation at older ages. The pedigree birds housed on our three research farms are now being evaluated for these traits, among others, to help ensure continued progress in persistency and shell strength.



Jonathan Cade, President, Hy-Line International

The addition of the Wallace Farm also increases the population of research birds from which to identify the top-performing individuals to populate the next generation. As a result of improved selection

intensity, Hy-Line varieties are gaining increased egg numbers, persistency, shell strength, egg weight and feed efficiency.

The future is bright with Hy-Line. I wish you success, and I thank you for your trust.



(center), and Director of Research and Development Dr. Danny Lubritz (second from right), celebrate the opening of the Dr. Henry A. Wallace Farm with federal, state and local dignitaries and construction partners.



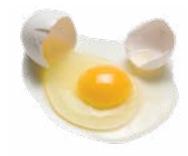
HPAI continued from p. 1

Hy-Line continues to drive improvements in understanding disease resistance with the goal of lessening the economic impact of diseases and improving animal well-being. The breeding goal includes identification of layers that are genetically able to survive diverse challenges, recover more quickly, and continue to produce at high performance levels.

"Health and resilience are at the foundation of all Hy-Line layers," said Dr. Danny Lubritz, Director of Research and Development for Hy-Line International. "For the benefit of the commercial egg producer, we are compelled to investigate the genetic influence for HPAI, as well as Newcastle Disease⁴, fowl typhoid⁵, Marek's Disease⁶, and other diseases."

Improving disease resistance requires long-term dedication. All improvements must be a careful balance of selection for multiple performance and quality traits. The comprehensive breeding program at Hy-Line International encompasses all aspects of bird health, well-being and performance, resulting in a well-balanced bird, capable of performing in multiple commercial environments, with high livability that can produce high-quality eggs with great efficiency.

- 1. Wolc et al 2018 Gen Sel Evol 2018, 50:21
- 2. Drobik-Czwarno et al 2018 Poultry Science 97:3421-3428
- 3. Drobik-Czwarno et al 2017 Animal 12:1363
- 4. Rowland et al 2018, Frontiers in Genetics, 9:326
- 5. Psifidi et al 2018, Frontiers in Genetics, 9:519
- 6. Fulton et al 2013. Avian Diseases, 57:519-522





IDS Fact Sheet Now Available

Hy-Line's Global Technical Services department is pleased to announce the publication of a new technical Fact Sheet: <u>Intestinal Dilation Syndrome (IDS)</u>.

This document is now available at www.hyline.com. A printed version is also available; contact your Hy-Line representative.

Hy-Line Brown Conquers Egg Weight Challenge

No matter the egg weight desired, the Hy-Line Brown may be adapted to meet the market preference through the genetic package and applied management.

Recently, egg weight preferences in the UK's brown egg market have shifted from the medium to large category (greater than 63 g). JA & J Tunstall is currently achieving 60% large eggs. In response, Hy-Line UK began offering the larger egg weight version of the Hy-Line Brown, the Hy-Line Brown Plus, which can achieve an up to 2-gram heavier egg weight. It is living up to its reputation while maintaining the Hy-Line Brown's well-established traits of persistency, feed efficiency, livabilty and feather cover.

Early results are showing an increased egg weight.

The birds, which were reared by Wota-Pullet, were weighing 1809 g at that point and by Week 30 had reached 1911 g body weight.

Reaching target body weight is crucial when it comes to achieving good egg weight. Holding back light stimulation while the birds reach the target body weight brought the flock into lay slightly later, losing one week of production. "But that was only a week of smalls we lost," says Roger Lythe of Thompsons of York, who feed the flock.

"So far, I'm very pleased with the flock and while we may get a few eggs less with this flock in early egg production, overall profitability is likely to be better because of the improved egg size," said Wayne Hardy, owner of JA & J Tunstall.



Mark Chapman (left), farm manager for JA & J Tunstall, with Hy-Line UK's Neil Willett (right).

The Hy-Line Brown yields more saleable eggs in the preferred egg weight profile. Additionally, the Hy-Line Brown's outstanding feather cover throughout the bird's life means the energy consumed is put into egg production with the added benefit of a higher bird value at end of lay.



Wayne Hardy, owner of JA & J Tunstall.

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JA & J Tunstall is currently achieving 60% large eggs.

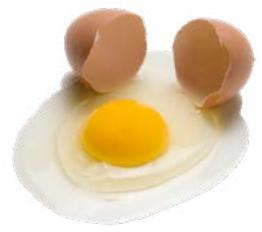
JA & J Tunstall, a Hy-Line UK freerange customer in Yorkshire, is seeing a 95 percent rate of lay at 30 weeks with an average egg weight of 65.7 g in their 24,000-bird flock. Neil Willett, area sales and technical manager for Hy-Line UK, has been impressed with the flock's performance on his visits.

"The birds reared very well and were 1382 g pre-transfer," he said. "We housed them on 10 hours light and then didn't stimulate them until Week 19, by which time they were weighing 1612 g. At that point, we gave them an extra hour and then an hour each week until they were on 15 hours by Week 23."

According to Mark Chapman, farm manager for JA & J Tunstall, floor eggs were down to a very manageable percentage by 27

weeks. "With this flock, all the birds were going up onto the system to roost within a week."

Larger eggs early in the Hy-Line Brown means more income to the producer, while controlled egg weight growth late in lay yields optimum eggshell quality.







Hy-Line Hosts Record International School

In June, Hy-Line hosted a record International Technical School, which attracted more than 150 customers from more than 43 countries. The program highlighted Hy-Line's accelerated genetic program, along with a series of presentations given by Hy-Line Technical Services and Research teams and industry experts.

Speakers presented topics ranging from Hy-Line's recent genetic progress across all lines, pullet nutrition, biosecurity and infectious disease to hatchery management and egg nutrition. An entire day was devoted to live demonstrations and workshops at Hy-Line's Dallas Center, Iowa campus, detailing



vaccination technique, hatchery breakout, poultry lighting, genomic selection and more. Participants also visited the Hy-Line Egg Quality Laboratory.

Dr. Ian Rubinoff, Hy-Line's Director of Global Technical Services, stated, "It was great to receive our worldwide friends and colleagues. We learn from our participants while updating them on our accelerated genetic progress and management advancements."



Attendees enjoy grilling their own steak dinner at a group outing.



Hy-Line President Jonathan Cade addresses the group.



Participants spent a day visiting various stations around Hy-Line's Dallas Center, lowa campus.



Participants heard presentations on a wide variety of topics, including nutrition, management, and welfare.



Participants paused for a photo in between sessions.

W-36 Parent Stock Flock Achieves Outstanding Performance

The Hy-Line W-36 has been and continues to be the bird of choice for producers around the world who need a highly efficient white egg layer with dependable production and industry-leading livability.

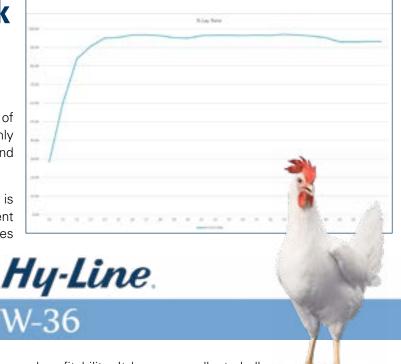
Longtime Hy-Line distributor in Chile, Avicola El Monte, is seeing excellent performance in its Hy-Line W-36 parent stock flocks. One flock now at 44 weeks of age continues to remain above 90 to 95% plus rate of lay for the past 21 weeks with 99% livability and shows no sign of slowing down.

In a recent interview, Dr. Jose Miguel Correa, veterinarian and managing partner of Avicola El Monte, noted the company continues to succeed

with the Hy-Line W-36. "It's a bird that provides very good profitability. It has an excellent shell quality, as well as an excellent egg quality inside the egg for the egg processing companies," said Dr. Correa. "It meets expectations after molting, as well in as in a single cycle where molting is not used. It is a rustic bird – very healthy. To tell you the truth, the W-36 has been the mainstay of our business in Chile for nearly 50 years, as we continue to be the dominant day-old chick supplier in the market."

Chile is a country with high egg consumption. In recent years, per capita egg consumption has increased from 170 to 240 eggs. The Hy-Line W-36 has excellent feed conversion. Avicola El Monte notes the W-36 consumes less feed than most varieties in the market, while yielding eggs in the most profitable egg weight categories in the Chilean market.

Avicola El Monte is a family business and can also claim the title of oldest Hy-Line distributor in the world, with a remarkable 57 years of partnership. "My father chose to purchase Hy-Line layers and we have never regretted his decision, says Dr. Correa. "We have not only received very good genetics, but we have also received very good treatment. We have never regretted choosing Hy-Line and we hope that our relationship will continue for many years to come."



W-80 Performance Earns Award for Ovobrand

The Hy-Line W-80 continues to prove itself as a robust white egg layer, gaining market share around the world in conventional and cage-free systems.

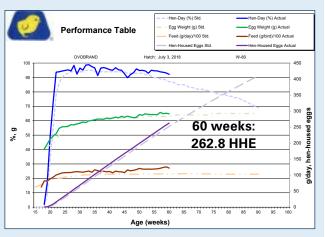


Regional Manager for Latin America Dr. Daniel Valbuena (left) presents the W-80 Flock Award to representatives from Ovobrand and Cabaña Avícola Feller.

Ovobrand, an Argentine commercial layer customer of loyal Hy-Line distributor Cabaña Avícola Feller, earned the highest recognition among W-80 layer customers at the Hy-Line International Technical School in June. One flock of W-80 layers

continues to exceed the Argentine standard, recently achieving 262.8 eggs per hen housed at 60 weeks.

Additionally, the strong performance of W-80 parent stock flocks for Cabaña



Avícola Feller in Argentina, is surpassing the standards for number of settable hen-housed eggs. The excellent performance of W-80 in Argentina sends a message around the world of the attainable performance of this variety.



Hy-Line Around the Globe



(L-R) Bruce Zhou, China Business Development Manager for Hy-Line International; Tom Dixon, Global Sales and Marketing Director for Hy-Line International; Mrs. Yang Li, Chairperson of Shenyang Huamei; Jonathan Cade, President of Hy-Line International; and Daging Wang, General Manager of Shenyang Huamei, pause in front of the new parent stock farm.

China: Shenyang Huamei Livestock and Poultry Co., Ltd. Expands with New Farms

Hy-Line distributor for more than 30 years, Shenyang Huamei Livestock and Poultry Co., Ltd., is nearing completion of its most recent parent stock expansion plan. Jonathan Cade, president of Hy-Line International and Tom Dixon, Global Sales and Marketing Director for Hy-Line International, recently visited the farm with Mrs. Yang Li, Chairperson, and Mr. Daging Wang, General Manager, of Shenyang Huamei Livestock and Poultry Co., Ltd.

"Shenyang Huamei Livestock and Poultry Co., Ltd. continues to improve and expand their excellent operation. This new expansion is another example of the company's desire to provide safe and high-quality products to their customers." said Cade. "We are grateful for their partnership in the China market for nearly 35 years and look forward for many more to come."

Once complete, this farm expansion will give Shenyang Huamei Livestock and Poultry Co., Ltd. a day-old chick capacity approaching 100 million day-old chicks per year, making them one of the

largest Hy-Line distributors in the world in sales volume. The expansion is part of a multi-year growth and plan to capture new

market share in China.





Australia: Fresh Start with Hy-Line Brown

What started as a hobby for a Hy-Line Brown commercial customer in Australia has given the family a fresh start and a profitable business.

In the midst of the dairy crisis Australia, Hickey

> from Trentham Victoria began small free-range hobby farm. Once the news spread in about the quality of their eggs, Trentham Happy Hens hobby farm quickly became a business. The business and Hickey family were featured recently in The Weekly Times, a news outlet in Victoria.









At left: Ron Gooi, Southeast Asia Regional Director (center) poses with representatives of Hy-Line customers CP Indonesia. At right: Gooi (right) and representatives from Hy-Line Brown commercial customer Jatinom Farm.

Indonesia: Hy-Line Welcomes Layer Farmers at INDO Livestock

Hy-Line exhibited at another successful INDO Livestock show in July. Customers and prospective customers alike flocked to the stand to discuss the Hy-Line Brown and its outstanding traits and performance. The Indonesia egg market has seen strong growth in recent years. According to the FAO, Indonesia produces more than 1.5 million tons of egg each year, which places it in among the top 10 countries globally. The per capita egg consumption is 100.

Mexico: Launch of New Distribution



Global Sales and Marketing Director Tom Dixon (second from right), Technical Services Veterinarian Dr. Fernando Navarro (third from right), and General Manager of Ponedoras Hy-Line, Dr. Egar Hernandez, meet with one of Ponedoras Hy-Line's first customers at the AVECAO exhibition.

In August, Hy-Line helped introduce Ponedoras Hy-Line (PHL) at AVECAO 2019 exhibition in Tepatitlan, Mexico. PHL will sell Hy-Line W-80 and W-36i varieties to open the commercial layer market in Mexico. The W-80 is valued in the market for her robustness. The W-36i brings excellent feed efficiency and egg quality. The accelerated genetic progress across all Hy-Line varieties is adding even more eggs in to the performance of Hy-Line layers.





Dr. Daniel Valbuena, Regional Manager, Latin America (second from right) poses with customers at the Ponedoras Hy-Line booth.



Hy-Line's People Make the Difference

New Hires and Promotions



Joseph Wetrich is the new International Sales Coordinator for Hy-Line. Joseph's primary role is to provide sales support to Hy-Line's Global Sales and Marketing Director and Regional Business Managers, and to coordinate activities related to global marketing sales, customer database maintenance, and customer and employee/consultant visits to Hy-Line International. Joseph is based in the West Des Moines, Iowa corporate office.

Joseph Wetrich

Dr. Seiche Genger has joined Hy-Line as Southeast Asia Technical Services Manager, and will focus on assessing the performance of Hy-Line commercial layer varieties in the field and assist customers to realize and maximize the genetic potential of Hy-Line layers in the region (including but not limited to: Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Korea, Philippines, Myanmar, Australia, and New Zealand). Seiche will be based in Thailand to enable local service as part of Hy-Line's "global, yet local" approach.



Dr. Seiche Genger



Renata Casadei has accepted additional responsibilities within her Global Logistics Manager role. Renata's primary responsibility is to manage and coordinate all logistics functions amongst all distribution locations (except the UK). In addition, Renata collaborates with the Director of Planning and Export, as well as key distribution location staff, for order completion. She also works to enhance the overall relationship with freight forwarders and airlines on behalf of Hy-Line International.

Renata Casadei

Valeriy Stepanenko has been promoted to Global GGP/GP Coordinator for Hy-Line International. He is primarily responsible for providing support to Hy-Line's non-USA GGP and GP distribution locations to ensure biosecurity, husbandry, genetic integrity, and welfare practices are performed to standards for optimal performance and production. Valeriy will remain based in the EU while involved with the UK, Brazil, Poland, Canada, Australia, and India production locations. Valeriy has been linked to Hy-Line International through sales and technical management roles for many years, and most recently he was a key contributor to the success of Hy-Line's collaboration with the Poland production center.



Valeriy Stepanenko

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