Research & Development Changes

An Update from the President

Our team at Hy-Line International continually pursues the strategic goal of enhancing our layer varieties and driving genetic progress of our gene pool to you, our global customer base. As a genetics company, research and development is our core business. A substantial amount of our annual operating budget is invested into our research efforts, making it one of the most significant investments for our future.

To remain the largest supplier of laying hen genetics, we will continue to invest heavily in research and development. We have a great responsibility to meet the demands. We are compelled to identify future market trends and proactively implement procedures within the breeding program to meet and exceed these constantly changing market requirements. We must deliver, in a timely manner, laying hens that are able to yield the expected performance.

To help our efforts, we have added a key role to our team in 2017 – Director of Global Product Management. Dr. Neil O’Sullivan began this very important function on January 1. As part of this strategic role, Neil will liaise with Hy-Line International’s production centers to ensure our genetic integrity is maintained at all times.

Hy-Line to Meet Future Demand with Expansion

Hy-Line is significantly expanding its research and development farm capacity to meet heightened demand for Hy-Line layers around the world with continual improvements in productivity for extended cycles. In 2017, Hy-Line will break ground on a $2.5 million expansion of the Dr. Dennis Casey Research Farm, increasing the farm capacity by 50 percent.

This investment in Hy-Line’s research and development program will allow Hy-Line to extend the evaluation of pedigree birds from 90 weeks out to 120 weeks of age for genetic selections, with further emphasis on persistency of lay, persistency of shell quality, and continued improvement in all other egg quality traits.

“Persistency of lay and egg shell quality show higher genetic variation at older ages so this information will help ensure continued genetic progress,” said Dr. Danny Lubritz, Director of Research and Development for Hy-Line. “The extended cycles also couple well with our genomics program allowing unique mating strategies to enhance genetic variation.”

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Hy-Line on the Move in China

China is the world’s largest and most dynamic egg market, boasting the largest increases in egg production year on year over the past 20 years. The growth will continue as the country invests in new technologies and the latest equipment and farming methods. Hy-Line’s distribution network is moving ahead as well to address the growing demand from the market for high-quality chicks in large lot sizes.

Hebei Huayu Poultry Breeding Company recently announced a three-way agreement, including the State of Iowa (USA) with Hy-Line support and the local state government in China, for a 4.6m CYN investment for projects surrounding laying egg production expansion in the state with egg processing. Governor Terry Branstad of Iowa was present with Mr. Zheng Chunning, Hy-Line China manager, along with Mr. Lianzeng Wang, for the signing ceremony. This is especially timely, as Mr. Branstad was recently nominated to become the U.S. Ambassador to China. The project will promote innovation and growth in the Hebei province’s egg industry with Hy-Line layers to fill the multimillion-bird egg farm.

Ningxia Xiaoming Agriculture and Animal Husbandry Co, Ltd., and Hy-Line recently announced its “Strategic Alliance” for the continued production and distribution of Hy-Line chicks to the China market during its inauguration of its most recent 30 million-bird hatchery expansion in Lankao China. The latest expansion brings the company’s capacity to exceed 100 million day-old chicks per year.

Ningxia company has experienced meteoric growth in the 10 years distributing Hy-Line Brown in China from its biosecure base in Yinchuan, China, and hatcheries strategically placed throughout China.

Shenyang Huamei Livestock & Poultry Company has initiated its own growth plan of Hy-Line Brown day-old chick distribution originating from northeast China’s Liaoning province. This includes construction of new parent stock farms and hatchery, doubling output in the near-term on the way to attaining 100 million day-old chicks by the year 2020. Huamei company is the oldest Hy-Line distributor in China, beginning with the breed in 1985.

2017 will see the re-introduction of Hy-Line white genetics into China together with huge gains in brown day-old chick production in the country to support the growing demand from the China egg market.
Hy-Line Expansion continued from p. 1

With each generation, Hy-Line varieties offer more flexibility with long cycles. This is true for both single-cycles and molt-cycles.

Hy-Line invests a considerable amount of annual turn-over in research efforts, making it one of the most significant investments for our future. Developing layer genetics is our core business. In collaboration with university scientists, Hy-Line was the first layer breeding company to privately fund and implement genomic selection on a commercial scale.

Hy-Line continues to be a pioneer as the first company with its own in-house molecular genetics team leading the industry in application of DNA-based technology to the breeding and genetics program. These efforts have set us apart from other poultry genetics companies.

“We are in a new frontier of molecular genetics, and Hy-Line is at the forefront of applying this cutting edge technology,” said Dr. Lubritz. “In fact, we had the foresight to begin this more than 18 years ago. As the technology has changed, we have invested in more efficient ways to assist in the selection of the elite genetic lines.”

Hy-Line’s molecular genetics program identifies the many small variations in the DNA of each elite bird that have an impact on the important traits being studied. DNA samples from every selected bird from every Hy-Line generation since 1996 have been maintained, creating the world’s most extensive DNA archive in the poultry industry. Having this historical data allows us to make even better selections for a bird that can meet future demands.

Generation after generation, producers will continue to capitalize on the superior livability of Hy-Line layers with even longer cycles of lay.

Research & Development continued from p. 1

These strategic production centers allow us to keep the flow of genetics to our global customers even in the event of trade barriers.

His role is external and customer-focused. It requires detailed knowledge of our research program and the progress that is being made in all lines, as well as management and knowledge-sharing practices on GP, PS and commercial layer varieties. This transfer of know-how must be effectively communicated to our global distribution partners and, most importantly, to your commercial layer customers.

I am also pleased to inform you that Dr. Danny Lubritz will be Hy-Line International’s Director of Research & Development, and he will further strengthen our commitment to R&D. Danny joined Hy-Line International on January 1. Danny was previously the Senior Geneticist for Cobb-Vantress. He has more than 18 years of experience in quantitative genetics. Danny will lead the R&D program, as well as the research team and research farm operations at Dallas Center.

Please join me in congratulating Neil and Danny.

I wish you, as always, success, and I thank you for your trust in Hy-Line.

Jonathan Cade, President, Hy-Line International

New Technical Updates Available

Hy-Line’s Global Technical Services department is pleased to announce the publication of several new Technical Updates.

- Proper Collection and Handling of Diagnostic Samples Part 3: Swabs
- Infectious Bursal Disease (IBD, Gumboro)
- Feed Granulometry and the Importance of Feed Particle Size in Layers

These documents are now available at www.hyline.com. Printed versions are also available; contact your Hy-Line representative.
Feed Granulometry and the Importance of Feed Particle Size

Chickens selectively eat based mostly on texture, color and feed particle size. Smell and taste do not have a strong influence. Feed particle size is an often-overlooked aspect of poultry production. You should not assume that feed is of a uniform size and homogeneously mixed, or that the feed mill is providing the ideal mix of particles in a ration.

GRANULOMETRY (DETERMINING PARTICLE SIZE)

Hy-Line has its own hand-held sieve shaker that can determine particle distribution of mash feeds on the farm. This is a useful tool to check feed deliveries from the feed mill and check particle size in the birds’ feeder.

FEED DELIVERY SYSTEMS

There are three methods of delivering feed in automated feeding systems.

Chain type feeders - Feed is distributed by dragging feed around the feed system with a chain. Chain feeders can cause feed particles to separate by size as it moves feed. The chains can grind the feed particles, although new chain type systems minimize this effect. Slow-moving chain feeders can allow birds at the beginning of a feed line to select the larger feed particles.

Auger type feeders - An auger is used to distribute the feed. The auger moves feed more rapidly with less feed particle separation and grinding, but delivers less feed volume than chain feeders.

Hopper type feeders - A traveling hopper distributes feed by moving down the feed line and dropping feed by gravity. This causes minimal separation and grinding of feed particles compared to other types of feeders.

Management of feeders is important to minimize the negative effects of feed particle separation and prevent the accumulation of fine feed particles. Birds need to consume both large and fine feed particles on a daily basis to ensure a balanced nutrient intake.

Optimal feed particle profile using the Hy-Line Sieve Shaker.

<table>
<thead>
<tr>
<th></th>
<th>&gt; 3 mm</th>
<th>2–3 mm</th>
<th>1–2 mm</th>
<th>&lt; 1 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>STARTER</td>
<td>1–3 mm diameter; crumble feed should contain &lt;10% fine feed particles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWER</td>
<td>10–25%</td>
<td>45–60%</td>
<td>&lt; 15%</td>
<td></td>
</tr>
<tr>
<td>DEVELOPER</td>
<td>5–10%</td>
<td>25–40%</td>
<td>25–35%</td>
<td>&lt; 15%</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>10–15%</td>
<td>30–40%</td>
<td>20–30%</td>
<td>&lt; 15%</td>
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For more information...

The “Feed Granulometry and the Importance of Feed Particle Size in Layers” technical update is now available at www.hyline.com.
Hy-Line Brown Market Share Expands in Southeast Asia

Hy-Line Brown, the world's profit-leading brown egg layer offers layer farmers in Southeast Asia a greater opportunity to make more profit.

Hy-Line has achieved increased market share in the region due to prolific egg numbers, feed efficiency, exceptional livability and superior egg color and quality. The Hy-Line Brown leads the way in a region that accounts for more than 63 percent of the world’s egg production.

Since 2013, Ba Huan is the largest egg marketer in the south, supplying millions of eggs to the Ho Chi Minh region each year.

In 2016, DTK joined the Hy-Line family filling a new parent stock farm with the Hy-Line Brown. They are rapidly gaining a 21 percent market share of the Vietnam chick market.

Indonesia

CP Indonesia opened the first grandparent farm with Hy-Line Brown after 15 years with a competitor layer brand. The company is the largest chick hatchery in Indonesia, with some 50 percent of this top 10 world egg market.

CV Missouri is Hy-Line’s oldest distributor in Indonesia. Over the past 17 years, they have placed Hy-Line Brown chicks in the market, with a strong market share of loyal customers.

Thailand

In mid-2016, CP Thailand, the world’s largest feed mill and Thailand’s largest layer chick hatchery, made the switch to place solely Hy-Line Brown GP in their operations after 25 years with a competitor layer brand. Because of the efficient egg production and deep brown color, the company recognized the profitability. These Hy-Line Brown layers were placed in their new grandparent stock farm. This significant milestone marks a new era in providing large volumes of profitable layers to the Thai market and makes the Hy-Line Brown the leading brand in this important Southeast Asia market.

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Hy-Line Around the Globe

(L-R): Kurt Rossi, International Sales Director for Hy-Line; Dr. Dr. Javad Farahani, Technical Director for Morghak Company; Amine El Ghissassi, Regional Business Manager in North and West Africa and the Middle East for Hy-Line; Dr. Mohammad Sobhani, Chief Executive Officer of Morghak Company; Dr. Douglas Grieve, Global Technical Services Director for Hy-Line; and Mohammed Zadah, Logistics for Morghak Company.

Iran: Morghak Company Hosts Customers

Long-time Hy-Line distributor in Iran, Morghak Company, hosted many customers and industry partners in its stand at the Iran Plex show in Tehran in October 2016. Hy-Line representatives were on-hand to discuss management and nutrition with those attending the show. Morghak Company has helped egg producers gain profitability in Iran with the efficient Hy-Line W-36 for more than 30 years. Recently, the company opened its new hatchery—one of the biggest in the Middle East.

Pakistan: Quality Poultry Breeders Introduces W-80

Over the course of four days, Hy-Line distributor Quality Poultry Breeders introduced the Hy-Line W-80 Plus to 600 Pakistani egg producers in three areas of the country. Dr. Hassen Sarosh, managing director of Quality Poultry Breeders, added the W-80 to their program because of its prolific egg numbers, excellent egg shell strength, and strong performance under challenging environments and low-density feed rations.

As Pakistan is a white-egg market requiring a larger egg size, the W-80 Plus is an exceptional fit. It has the same great traits as the W-80 with an egg weight profile two grams heavier.

(L-R): Dr. Hassen Sarosh, Managing Director of Quality Poultry Breeders and Amine El Ghissassi, Regional Business Manager in North and West Africa and the Middle East for Hy-Line, introduced the Hy-Line W-80 to egg farmers in Pakistan.

Europe and Beyond: EuroTier 2016

In November 2016, Hy-Line continued its 80th anniversary celebration at EuroTier 2016. The show attracted 163,000 visitors. The total number of exhibitors was 2,629 from 58 countries, said Dr Reinhard Grandke, CEO of the show’s organizer German Agricultural Society (DLG).

Nearly one in four visitors was from outside of Germany. These 36,000 farming professionals represented five continents, with the leading countries represented including the Netherlands, Austria, Great Britain, Denmark, Belgium, Switzerland and Poland. The proportion of visitors originating from outside Europe increased by a large margin, with more visitors than ever before coming from North and South America, as well as the Middle and Far East.
Hy-Line and Kenbrid Farms celebrated a 10-year partnership in 2016. “Kenbrid Farms is advancing the growing Kenyan layer market with the world’s most balanced brown egg layer, the Hy-Line Brown,” said Kurt Rossi, International Sales Director for Hy-Line. “We are pleased to be their partner.”

Japan: GHEN Corporation Shares Latest Knowledge

In September 2016, GHEN Corporation hosted their annual technical school. More than 30 GHEN Corporation employees and customers received the latest management and nutrition information from Hy-Line and participated in a question and answer session. Additionally, GHEN Corporation reward its customers with flock performance awards for the best W-36, Hy-Line Brown and Sonia hen-housed egg numbers.

Colombia: Avicol Hosts First Egg Quality School

Recognizing the important connection egg quality has to saleable eggs, Avícola Colombiana S.A., hosted the First Avicol Egg Quality Seminar in November. More than 100 Avicol employees and customers learned methods for continually improving shell and interior egg quality. Avicol is a long-time Hy-Line partner, distributing the Hy-Line Brown in Colombia for 25 years.

Kenya: Kenbrid Farms Celebrates 10th Anniversary


(L-R) George Miheso, owner of Kenbrid Farms, accepts a plaque to commemorate a 10-year partnership with Hy-Line from Kurt Rossi, International Sales Director and Sujeewa Lokuwaduge, Regional Business Manager, Sub-Saharan and Eastern Africa.
Dr. Xiaoliang Wang has joined the Hy-Line China team as Technical Services Manager. He will be based in Shanghai, China.

In this position, Dr. Wang will coordinate Hy-Line technical service activities in China, provide technical support for Hy-Line GP customers, collect and benchmark commercial flock performance data from the field. He will also provide important feedback to our genetic research team that will allow for continual improvement of Hy-Line layer products sold in China.

“Dr. Wang has worked closely with Hy-Line Technical Services for the past three years, working at the Shanghai Academy of Agricultural Sciences,” said Dr. Douglas Grieve, Global Technical Services Director for Hy-Line International. “We are pleased he has now joined Hy-Line full-time to manage our technical service efforts in China. This will get us closer to the Chinese layer sector and improve our ability to serve this important market.”

Christopher Kuhl has been hired as Finance Manager for Hy-Line. He will be based in the Hy-Line International corporate office in West Des Moines, Iowa, USA. In this position, Christopher will analyze the costs of Hy-Line’s day-to-day operations, provide sound financial feedback and look for sales revenue opportunities.

“As Hy-Line experiences growth, We have recognized the need for a more detailed level of business analysis and compliance both in the USA and also in our other contract production hubs, such as the UK, Brazil and India,” said Jonathan Cade, President of Hy-Line International. “This will help us look for the best cost of production while maintaining the top quality of our day-old grandparent and parent stock.”

Christopher has more than 12 years of experience in finance, from auditing and controlling to financial planning and analysis.

W-80 Gains Key Market Share

Hy-Line celebrated its 80th anniversary in 2016 by introducing a new variety – the W-80. By the end of 2017, an estimated 800,000 parent stock will have been placed around the world, delivering profitability for producers.

“The W-80 is gaining key market share around the world in various climates and housing systems,” said Jonathan Cade, president of Hy-Line International. “With the addition of the W-80, we are proud to say Hy-Line delivers a bird for every market.”

 Appropriately named for the company’s anniversary milestone, the W-80 is a robust white egg layer for all housing systems and environments. This bird delivers prolific egg numbers, excellent egg shell strength, and strong performance under challenging environments and low-density feed rations.

The W-80 is adaptable to alternative production systems and remains calm for easy management. For markets requiring a larger egg size, the W-80 Plus gives producers the same great traits with an egg weight profile two grams heavier.

Its persistency for long single-cycle lay means more eggs on five grams less feed. Producers gain more profitability with a feed savings of approximately two kilograms per bird per year versus competing brands.