



Hy-Line®



# Hy-Line Innovations

A Publication of Hy-Line International

## New Staff Members Strengthen Hy-Line Customer Support



**Andrew Jackson** has been appointed as Managing Director of Hy-Line UK International. His responsibilities include Operations, Sales and Technical Service of Hy-Line UK International Ltd. covering the Europe, Middle East, India and the Indian subcontinent, Africa, Russian and CIS country's supply business of Hy-Line International Inc. Andrew reports to Jonathan Cade, President of Hy-Line International.

The team of Regional Business Managers, Technical Manager, Technical Support Specialist and Export Manager as well as financial and administrative staff in Hy-Line UK International Ltd. will be assisting Andrew in his important role. Andrew will also work closely with Nigel Butcher, Managing Director of Hy-Line UK Ltd and his team who are key partners for the production and hatching of Hy-Line's parent breeding stock.

Continued on pg. 8

## Zamorano Receives Egg Quality Device from Hy-Line

An important Latin American agricultural institute, Zamorano, Panamerican Agricultural School, has received the donation of an egg shell quality measuring device from Hy-Line International. Dr. Jesus Arango who leads Hy-Line's Egg Quality Laboratory arranged the gift to support research by Dr. Abel Gernat and his colleagues in the Sciences and Production Department. Located near Tegucigalpa, Honduras, Zamorano is one of the most important Latin American educational institutions preparing students for agricultural careers. The school is over 5000 hectares and has over 1500 students from 21 countries.

Dr. Gernat, colleagues and students have cooperated with Hy-Line International on studies documenting the effects of varied diets on egg production and egg quality. The TSS device will be used in the future for other studies and with on-going research at Zamorano.



Dr. Arango on the left with Dr. Gernat and the TSS device.



Zamorano recently celebrated its 70th anniversary.

## INSIDE THIS ISSUE:

Customer News . . . . .	2-3
Leadership in Genetic Innovations . . . . .	4-5
Hy-Line W-36 Field Results. . . . .	6-7
New Hy-Line Staff Members . . . . .	8

# Customer News

## NEW HY-LINE DISTRIBUTOR IN LIBYA

Hy-Line International has signed an agreement to provide breeding stock to Golden Poultry in Libya. Dr. Mustapha Salim and Mr. Ahmed Bahij of Golden Poultry were able to meet and sign the contract with Mr. Jonathan Cade and others in Hannover, Germany at EuroTier 2012. Golden Poultry has 100 percent of the market in Libya and will receive 2 large shipments every year of the Hy-Line Brown and Hy-Line W-36 layer parents.



*From left to right: Amine El Ghissassi, Andrew Jackson, Albert Cordts, Ahmed Bahij, Dr. Mustapha Salim and Jonathan Cade*

## IMPORTANT MOROCCAN EGG PRODUCERS VISIT HY-LINE

A group of fourteen producers from Morocco spent several days in the U.S. discussing topics related to agriculture as guests of the U.S. Soybean Export Council. Among their many stops was Hy-Line International on September 21st and 22nd. During their trip to Hy-Line they met with Dr. Antonio Paraguassu, Dr. Petek Settar and Dr. Doug Grieve on layer nutrition, housing processes, genetic selection and environmental standards.



## SUCCESSFUL HY-LINE SEMINAR IN THE DOMINICAN REPUBLIC



Hy-Line International recently held the 3rd Annual Technical School at Santiago de los Caballeros in the Dominican Republic.

With more than 130 participants, Dr. Sergio Ibarra from Austral (Hy-Line's Agent Representative in the DR), Dr. Francisco Rojo of Merial, Dr. Douglas Grieve, Director of Technical Services, along with Francisco Portela, Regional Business Manager, gave presentations on Management, Nutrition and Disease Control for modern laying hen operations.

"We are very proud of the commitment and the support to the Dominican Layer Industry that Hy-Line International is showing by successfully holding these types of schools that have become a yearly tradition" said Dr. Ibarra.



*Agropecuaria Wilse*



*Huevos Don ChiChi*

The occasion also celebrated two long-term Hy-Line distributors who reached milestone anniversaries. Roberto Jimenez received a 10 year award on behalf of Agropecuaria Wilse and Huevos Don ChiChi was represented by Fabio Baba III and Pedro Baba for having purchased Hy-Line W-36 breeding stock for over 25 years. Also shown are Dr. Doug Grieve and Francisco Portela of Hy-Line.

## CHINESE COMPANIES AND HY-LINE INTERNATIONAL SIGN MEMORANDUMS OF UNDERSTANDING

At a ceremony held at the Iowa State Capitol, government officials from the province of Hebei, People's Republic of China and the state of Iowa witnessed signing of Memorandums of Understanding between three Hebei companies and Hy-Line International. Officials from Shijiazhuang Huamu Poultry Industry Company, Hebei Huayu Poultry Company and Hebei Fanyai Investment Company participated in the signing along with Hy-Line. The agreements were to commit to strong business cooperation between Hy-Line International and the companies. Among those in attendance were Mr. Bill Northey, Iowa's Secretary of Agriculture and Mr. Shen Xiaoping, Vice Governor of Hebei Provincial People's Government. The group also included several government officials and officers of other companies from Hebei Province, as well as representatives from Hy-Line International and other agricultural businesses located in Iowa. In 2013, Iowa and Hebei Province will celebrate 30 years of cooperation and exchange as Sister States.



## OVER 240 PERUVIAN EGG PRODUCERS ATTEND PRODUSS & HY-LINE SEMINARS

Supported by the always professional team from Produss, Hy-Line's Peruvian distributor, Hy-Line's Latin American Team gave two well-received seminars in Trujillo and Lima. Over 97% of the attendees rated their satisfaction with the presentations in the two highest ratings possible.



Left to right, Front Row, Dr. Jesus Arango, Tom Dixon and Francisco Portela of Hy-Line. Back Row, Produss Team – Renato Raffo, Miguel Fernández, Rizal Bragagnini, Liliana Monteverde, Juan Carlos Arriarán and Dra. Magali Mora



Peruvian producers show their excitement for Hy-Line Brown which has also been demonstrated by their increasing purchases over the past year.



Gathering in Lima



Trujillo Audience

# Continued leadership in genetic innovations for the 21st Century

by the technical R&D team,  
Hy-Line International.

Poultry breeding is a combination of acquired expertise and science that requires long term investments of both time and resources. Each elite line that is used at a grandparent level contains a large number of birds that are extensively measured for multiple traits throughout their lifetime.

The best individuals are identified and used to breed the next generation. Those subsequent generations are then used to make the hybrid crosses that ultimately result in the commercial layer.



## Research program

In their research program, Hy-Line carefully measures over 30 different traits of importance to commercial egg production and bird welfare. Among others, these traits include liveability, egg production, feed efficiency, nesting behaviour, persistency of lay, and interior and exterior egg quality traits.

In addition, Hy-Line has the industry's largest and most comprehensive field test program with sire-coded progeny placed in

commercial operations in several locations around the world.

This program gives real-world results from test birds producing in different climates with a variety of management systems, feeds, feeding programs and disease challenges. The results facilitate family selections and provide essential data for the selection process. Information from hundreds of thousands of birds in both the research and field test programs is fed into massive databases for statistical analysis.

As geneticists evaluate each bird against others in that generation, the expertise of genetic selection emerges. Advanced statistical procedures analyse thousands of data points collected from each research bird to predict that bird's breeding values for all traits.

Then using their expertise in poultry breeding, the genetics team decides the relative emphasis of each trait and generates a selection index to make the final decision to select which birds progress to the next generation.

Years of selection in the elite lines determines the commercial layer's ultimate performance in the field. Hy-Line continues to

breed birds with excellent egg production, as well as leading the industry in the traits of liveability, feed efficiency and egg quality by placing long term emphasis on these characteristics.

Chicken breeding today happens the same way as designed by Mother Nature – semen from roosters fertilising hens. The eggs laid by those hens are then incubated and hatched as chicks. The selection process involves identification of the best birds from the best families with the best performance and selecting those birds to produce the next generation of elite breeding stock.

## The new tools

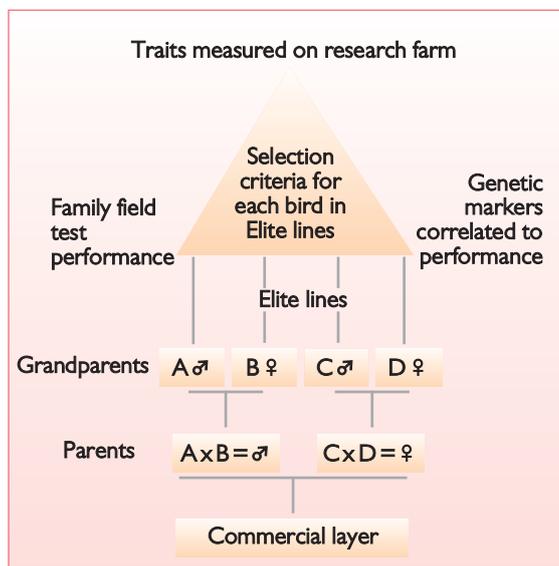
The Hy-Line Molecular Genetics Program strives to identify the many small variations in the DNA of each elite bird that have an impact on the important traits being studied.

When the program was initiated in 1996, the state-of-the-art technology allowed study of 100 different DNA variations (or markers).

Bird-to-bird variation was identified in 5,000 samples per week and correlated to performance characteristics. 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.

Scientists from Hy-Line and the EW

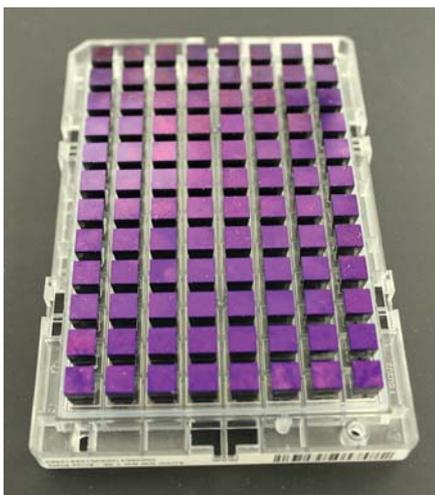
Fig. 1. Hyline's research program.



Group have recently collaborated with UK scientists and sequenced the DNA of Hy-Line's elite pedigree lines. This research identified over 39 million novel changes that exist within the DNA code of chickens.

The changes in the DNA (single nucleotide polymorphisms or SNPs) are quick and easy to detect due to the development of the next level of molecular genetic testing – a SNP 'chip' that analyses 650,000 SNPs from one bird simultaneously! Even more impressive is the fact that 96 of these 'chips' are mounted on a single plate to allow detection of over 62 million SNPs at the same time!

Moving into 2013, the Hy-Line molecular genetics laboratory has been upgraded to



**Over 62 million SNPs can be simultaneously analysed with this plate.**

generate SNP information. A recent investment in a KBioscience SNP Line System (valued over \$450,000) allows for rapid in-house detection of SNP variations. This system allows individual testing of thousands of samples for hundreds of carefully selected SNPs at a rate of over 100,000 tests per day.

Combining information from both the 650,000 SNP 'chip' and this in-house SNP

detection system provides the best and most rapid identification of genetic variations important for commercial egg production.

The volumes and complexity of data generated by these new technologies is unimaginable. A dedicated software system is used to analyse the SNP data and integrates those results into the existing databases that contain the thousands of data points on performance traits gathered on the research farms and from global field tests. Utilising newly developed statistical methods, these technologies are now used to compare SNP variations to performance. Finally assembled, all of this information predicts breeding values used for selection – a process known as genomic selection.

Both the speed and accuracy of the selection process is improved with genomic selection. Not only will the right birds be selected, but their genetic potential is identified earlier in the bird's life. Hy-Line's real-world testing confirms that the annual rate of improvement will increase 15-40% year-on-year, depending on the specific trait being measured!

### The learning

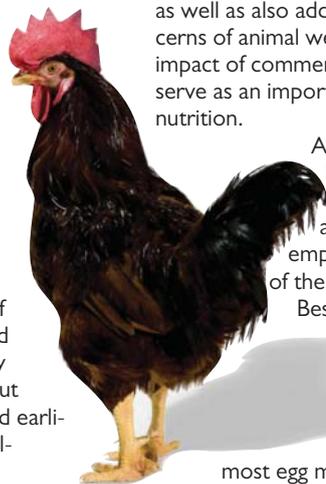
Geneticists have long observed great genetic diversity within lines, even in closed populations, based on their work using traditional research techniques. Use of these new advanced molecular tools has uncovered the existence of considerable genetic diversity that will sustain elite breeding lines long into the future.

Hy-Line geneticists have worked in collaboration with university and government researchers in studying many challenges relevant to the breeding of poultry. These col-

laborative efforts have yielded a wide range of scientific papers published for the advancement and understanding of breeding and genetics in poultry and other species.

### The bottom line

Hy-Line's Research Program will continue to select for layer varieties that are productive, as well as also address the important concerns of animal welfare, environmental impact of commercial egg production, and serve as an important source of human nutrition.



A breeding company combines information from multiple traits to develop a breeding program emphasising different aspects of the egg production process. Besides egg production, Hy-Line has always been focused on liveability, feed efficiency and egg quality resulting in birds producing the most egg mass for the least cost.

These important characteristics have an even more broad-reaching impact.

Superior liveability of Hy-Line varieties assures all of us concerned about animal welfare that the birds are healthy throughout their productive life.

Superior feed efficiency reduces the amount of arable land use for grain production. Less feed used by Hy-Line layers lowers the emission of greenhouse gases and reduces the carbon footprint of egg production resulting in a more sustainable industry.

And finally, superior egg shell quality means a higher percentage of eggs reach the consumer. This well balanced research program is accomplished with the expertise of selection using traditional methods now enhanced by including genomic selection in Hy-Line's unique and pioneering genetics program. ■

**Hy-Line geneticists (from left to right) Dr Jesus Arango, statistical geneticist, Dr Neil O'Sullivan, director of research, Dr Petek Settari, population geneticist and Dr Janet Fulton, molecular geneticist. Not pictured – Dr Ania Wolc, genomic geneticist.**



### Genetic innovations

As the oldest layer genetics company, Hy-Line International owns a long list of innovative firsts – beginning with hybrid vigour from crossing multiple elite (pure) lines to produce hybrid layers in the 1930s, the use of blood-types as a genetic marker for liveability in the 1960s and the first major breeder to introduce feather-sexing of day-old chicks with the W-36 in the 1970s. So it is not surprising that Hy-Line was the first poultry breeding company to establish an in-house molecular genetics program in 1996 and to complete a state-of-the-art laboratory in 1997. In collaboration with university scientists, Hy-Line was the first layer breeding company to privately fund and subsequently implement genomic selection on a commercial scale.

# Hy-Line®

## W-36



**Best Feed Efficiency. Higher Liveability. Better Eggs.**

### 2011-2012 World Flock Results

#### BRASIL – CONVENTIONAL CAGES – MOLTED FLOCKS TEMPERATURE RANGE 10–36°C/50–97°F

Flock Age	110 Weeks	110 Weeks
Flock Size	11,150	11,150
Livability	86.0%	89.4%
Eggs per Hen Housed	464	473



#### BRASIL – CONVENTIONAL CAGES TEMPERATURE RANGE 25–36°C/72–97°F

Flock Age	79 Weeks
Flock Size	37,531
Livability	85.0%
Eggs per Hen Housed	353
Average Daily Feed Consumption	87 g
Average Daily Feed per 100 Birds	19.2 lb
Feed per Dozen Eggs	1.28 kg/2.82 lb

#### CANADA – CONVENTIONAL CAGES TEMPERATURE RANGE -24–25°C/-10–78° F

Flock Age	69 Weeks
Flock Size	45,209
Livability	99.0%
Eggs per Hen Housed	300
Feed per Dozen Eggs	1.33 kg/2.93 lb

#### COLOMBIA – CONVENTIONAL CAGES TEMPERATURE RANGE 18–24°C/64–75°F

Flock Age	80 Weeks	80 Weeks
Flock Size	10,334	5,050
Livability	96.3%	98.1%
Eggs per Hen Housed	362	368
Average Daily Feed Consumption	97 g	98 g
Average Daily Feed per 100 Birds	21.4 lb	21.7 lb
Feed per Dozen Eggs	1.37 kg/3.02 lb	1.36 kg/3.00 lb



**LESS = MORE**

**Less Feed = More Profit.**

**EGYPT – CONVENTIONAL CAGES**  
**TEMPERATURE RANGE 15–35°C/59–95° F**

Flock Age	80 Weeks	80 Weeks	80 Weeks
Flock Size	23,500	24,000	33,000
Livability	90.0%	96.0%	93.0%
Eggs per Hen Housed	350	353	354
Average Daily Feed Consumption	102 g	105 g	104 g
Average Daily Feed per 100 Birds	22.5 lb	23.1 lb	22.9 lb
Feed per Dozen Eggs	1.46 kg/3.22 lb	1.5 kg/3.3 lb	1.48 kg/3.26 lb

**USA – CONVENTIONAL CAGES – MOLTED FLOCKS**  
**TEMPERATURE RANGE -20–30°C/-5–85° F**

Flock Age	89 Weeks	109 Weeks	110 Weeks
Flock Size	54,129	29,680	108,127
Livability	96.1%	87.7%	90.6%
Eggs per Hen Housed	382	481	485
Feed per Dozen Eggs	1.51 kg/3.34 lb	1.46 kg/3.25 lb	1.51 kg/3.33 lb

**USA – CONVENTIONAL CAGES – MOLTED FLOCKS**  
**TEMPERATURE RANGE -23–37°C/-10–98° F**

Flock Age	86 Weeks	101 Weeks	106 Weeks	106 Weeks
Flock Size	85,227	85,952	85,053	119,241
Livability	95.2%	95.3%	93.9%	93.3%
Eggs per Hen Housed	354	467	465	467
Average Daily Feed Consumption	95 g	97 g	95 g	96 g
Average Daily Feed per 100 Birds	20.9 lb	21.4 lb	21.0 lb	21.2 lb
Feed per Dozen Eggs	1.58 kg/3.49 lb	1.35 kg/2.98 lb	1.35 kg/2.97 lb	1.43 kg/3.15 lb

**USA – CONVENTIONAL CAGES – MOLTED FLOCKS**  
**TEMPERATURE RANGE -23–37°C/-10–98° F**

Flock Age	103 Weeks
Flock Size	63,883
Livability	95.0%
Eggs per Hen Housed	455
Average Daily Feed Consumption	97 g
Average Daily Feed per 100 Birds	21.4 lb
Feed per Dozen Eggs	1.58 kg/3.49 lb

**USA – CONVENTIONAL CAGES – MOLTED FLOCKS**  
**TEMPERATURE RANGE -28–37°C/-20–98° F**

Flock Age	110 Weeks
3 Flocks/Total	490,763 Birds
Livability	95.0%
Eggs per Hen Housed	491
Average Daily Feed Consumption	93 g
Average Daily Feed per 100 Birds	20.51 lb
Feed per Dozen Eggs	1.56 kg/3.43 lb



**Hy-Line**

Hy-Line International | [www.hyline.com](http://www.hyline.com)

© 2013 Hy-Line International. ® Registered Trademark of Hy-Line International. Hy-Line is a brand name.



Continued from pg. 1



**Dr. Aidan Leek** joins Hy-Line UK International as Technical Manager. He provides nutritional and technical support for Hy-Line customers. Dr. Leek works closely with Regional Business Managers, as well as the UK sales and technical team and colleagues within the E.W. Group European layer distribution companies.

Dr. Leek has more than 10 years experience in the broiler and layer sectors providing nutrition, feed manufacture and feeding advice. He previously worked for a European nutrition company, providing technical support to the United Kingdom and Russia. Dr. Leek received his PhD in Nutrition from University College Dublin.



**Dr. Travis Schaal** has joined Hy-Line International as a Technical Services Veterinarian. Dr. Schaal focuses on the internal veterinary programs in Dallas Center including export documentation, biosecurity and animal welfare programs. He also works with the Global Technical Services team in providing support for Hy-Line North America and Valo BioMedia North America.

A graduate of Oregon State University, Dr. Schaal received numerous awards, including the L. Dwight Schwartz Travel Scholarship, Kenneth H. Eskelund Preceptorship and AVMA Student Externship Stipend Award. He is a member of the Association of Veterinarians in Egg Production, American Association of Avian Pathologists, American Veterinary Medical Association and the Poultry Science Association. Additionally, he has extensive laboratory and field experience through the Oregon Department of Agriculture, USDA Food Safety Inspection Service, and working with veterinarians in many aspects of the poultry industry.



**Ron Gooi** works as Southeast Asia Regional Business Manager of Hy-Line International. Tom Dixon, International Sales Director, commented "Ron is managing our fast-growing business in this important region of the world. He helps our current customers grow their local business base as well as establishes Hy-Line in new markets. Ron brings Hy-Line many years of experience from the layer equipment and ventilation industries along with a deep understanding of the challenges and opportunities of the region's layer customers."

Mr. Gooi is based in Kuala Lumpur, Malaysia and works closely with Hy-Line International colleagues around the world.



Hy-Line UK International announces the addition of **Sujeewa Loku Waduge** as Technical Support Specialist sharing his expertise in the management of Parent and Grandparent Stock. Mr. Loku Waduge is a graduate of Hardy Agricultural College and the University of Sabaragamuwa in Sri Lanka as well as the University of Glamorgan, United Kingdom. He has been in the poultry industry for nearly 25 years and has worked in Southern Asia, Africa and the United Kingdom.

### 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

### Hy-Line UK International

Lower Skilts Farm  
Henley Road  
Outhill, Studley  
Warwickshire, B80 7DU  
United Kingdom  
Phone: +44 1527 850221  
Fax: +44 1527 851699



Email: [info@hyline.com](mailto:info@hyline.com)  
[www.hyline.com](http://www.hyline.com)